

December • 1961

American Perfumer

HEALTH
SCIENCES

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Evaluation of
Pharmaceutical
Emulsions

European Contribution to Aerosol Technology

How to Meet the Impending
Threat of Tighter Money

Male
or Female
Note

**When all
is said
and done...
there is just
one thought
at this time
of year—*



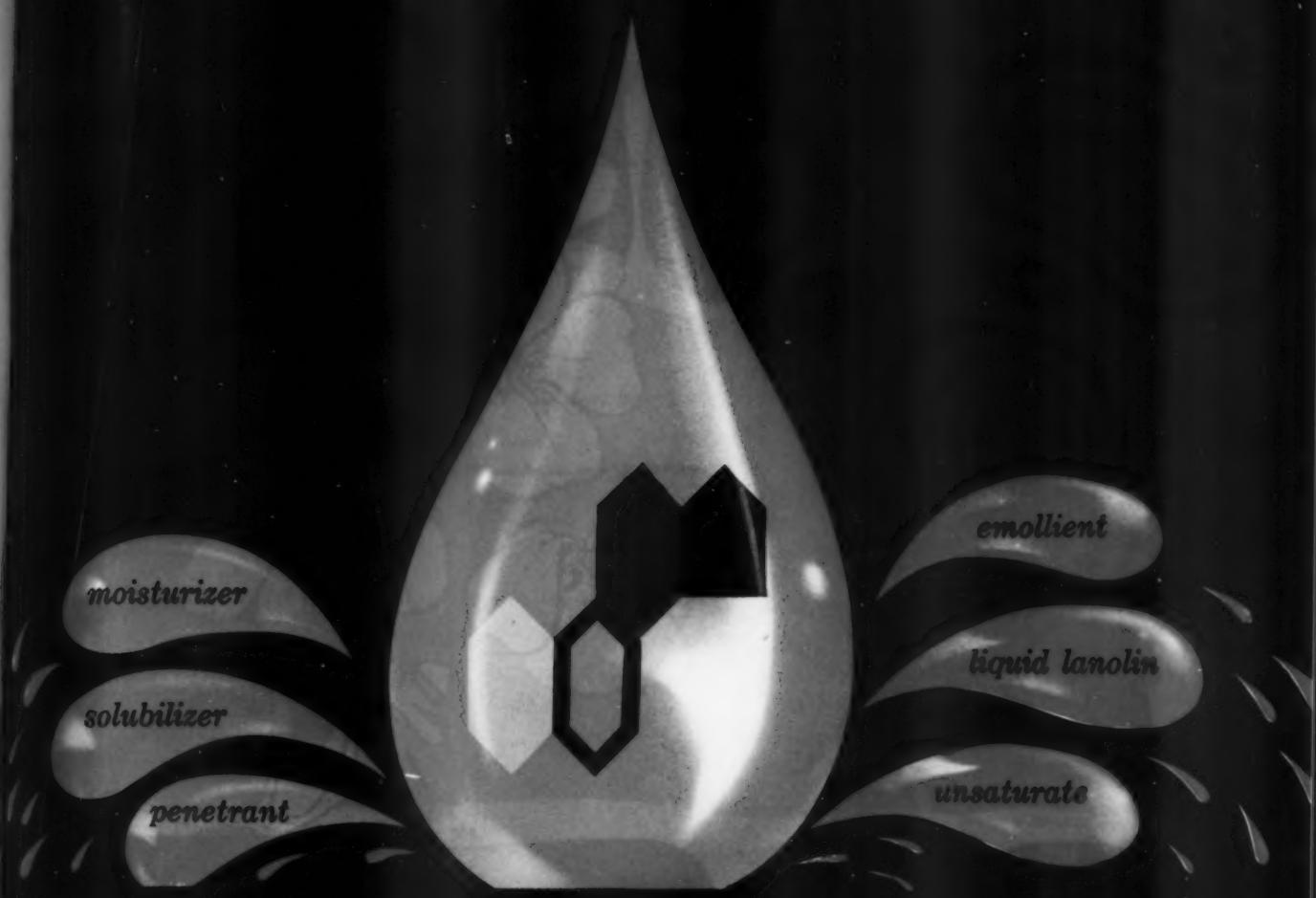
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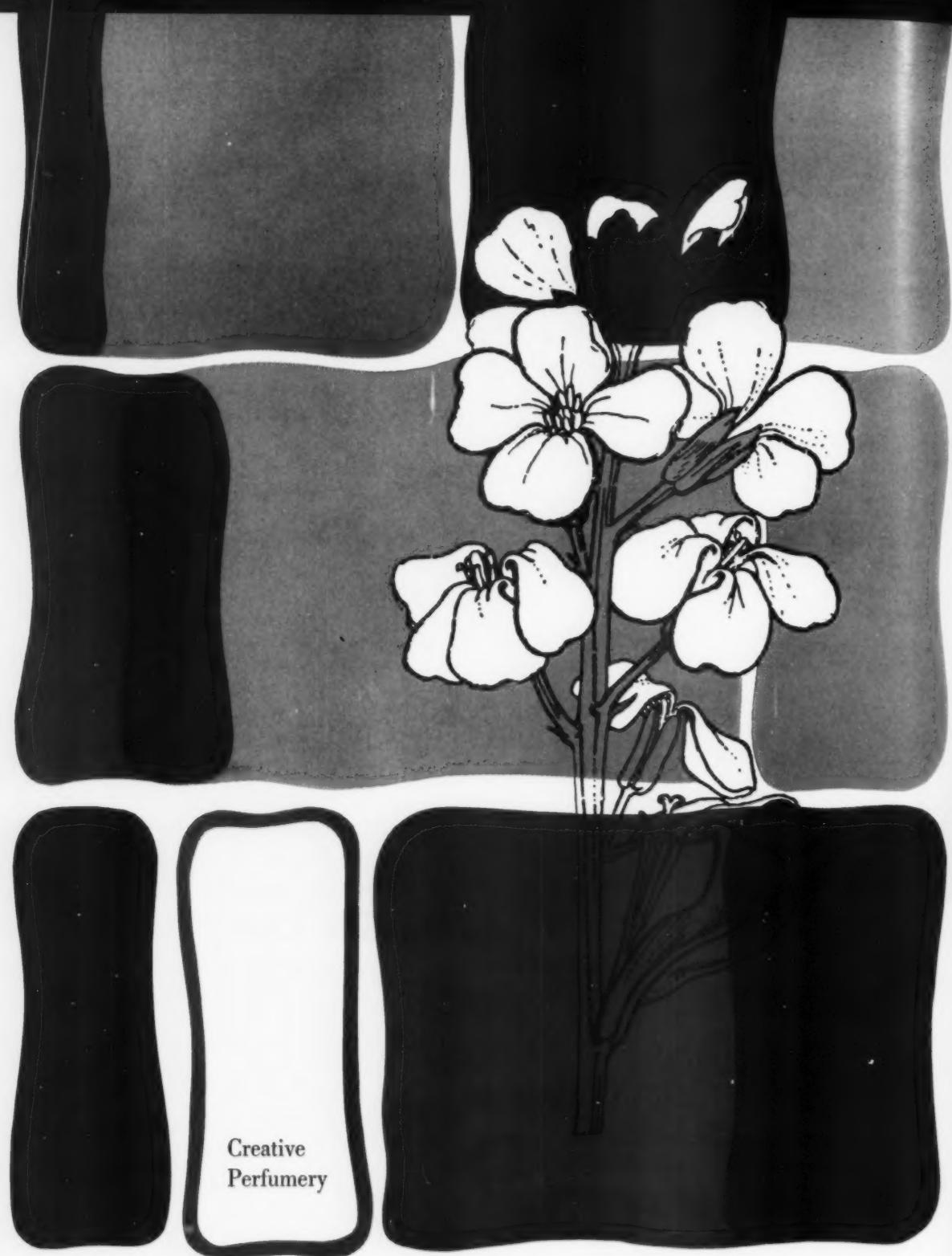
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American Perfumer

VOL. 76, NO. 12

December, 1961

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The great range of odorants and original perfume bases stimulates creative intuition.

Note Masculine or Féminine

La grande variété des odorants et les bases originales des parfums stimule l'intuition créative.

Distintivo masculino o femenino

La gran variedad de odorantes y bases primarias de perfumes estimula la intuición creativa.

Männer und Frauen—zur Beachtung

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Oleasters or Wild Olives although a small order comprises three important genera and about 50 species. The order has unique fragrances.

Les Fleurs et les Feuilles Parfumées—Part III, L'Elaeagnaceae

Les Oleasters ou Olivers Sauvages, quoique faisant partie d'une petite espèce comprend trois genres et environ 50 espèces. La fragrance de cet espèce est unique.

Flores y hojas fragantes—Parte III, La Elaeagnaceae

Oleastros u olivas silvestres, aunque una pequeña categoría comprende tres géneros importantes y alrededor de 50 especies. Esta categoría posee fragancias únicas.

Duftende Blumen und Blätter—Teil III, Die Familie der Elaeagnaceen

Wilde Ölbaum und wilde Oliven umfassen drei wichtige Gattungen mit ungefähr 50 Arten, obwohl es sich hierbei nur um eine kleine Ordnung handelt, die sich durch einzigartige Wohlgerüche auszeichnet.

Evaluation of Pharmaceutical Emulsions . . . by Phyllis Carter 27

Know-how of emulsion evaluation is important in development work, in screening the final product during and after manufacture for batch uniformity, and for proper packaging selection.

Evaluation des Emulsions Pharmaceutiques

Connaitre l'évaluation d'émulsion est un facteur important dans le développement du travail, en choisissant le produit adéquat pendant et après le procédé de manufacture pour l'obtention d'un lot uniforme et pour sélectionner l'empaquetage.



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Evaluación de las emulsiones farmacéuticas

El conocimiento de la tecnología de evaluar las emulsiones es importante en el trabajo de fomento, en la determinación del producto final durante y después de la manufactura, a fin de fijar su producción uniforme, y para la adecuada selección del empaque.

Bewertung pharmazeutischer Emulsionen

Eine gute Sachkenntnis der pharmazeutischen Emulsionen ist wichtig bei der Arbeitseentwicklung, beim Prüfen des Enderzeugnisses während und nach der Herstellung auf die Einheitlichkeit der Gesamtmenge hin und bei der Wahl der geeigneten Verpackung.

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Bleichmittel-Zusammensetzung

Es werden Haarbleichmittel besprochen, die in Wasser gelöstes Wasserstoff-Superoxyd, sowie Ammonium Salz und ein Verdickungsmittel enthalten.

How to Meet the Impending Threat of Tighter Money

by LeRoy L. Kohn 33

Methods of raising capital for needed expansion are set down.

Comment faire face à la menace d'un manque de capital

Les Méthodes pour acquérir le capital nécessaire pour s'agrandir y sont démontrées.

Como hacer frente a la inminente amenaza de la creciente escasez de dinero

Se exponen medios de levantar capital para la necesaria expansión.

Wie man der drohenden Geldnappheit entgegentreten kann

Methoden für die Aufreibung von Kapital zu einer notwendigen Geschäftserweiterung werden besprochen.

European Contribution to Aerosol Technology

by Dr. Hans Kubler 35

An interesting report on technical advances made in containers and propellents abroad. Author calls for more interchange of information between countries.

La Contribution Européenne à la Technologie d'Aérosol

Un intéressant rapport sur les progrès techniques réalisés sur les récipients et les propulsifs à l'Etranger. L'auteur préconise des échanges de vue entre pays.

Contribución europea a la tecnología del Aerosol

Interesante informe sobre los adelantos técnicos realizados en el exterior en materia de envases y agentes impulsantes. El autor propone un mayor intercambio de información entre las naciones.

Europäischer Beitrag zur Aerosol-Technik

Ein interessanter Bericht über technische Fortschritte, die im Ausland hinsichtlich Behälter und Austreibmittel gemacht wurden. Der Verfasser regt vermehrten Informations-Austausch zwischen den verschiedenen Ländern an.

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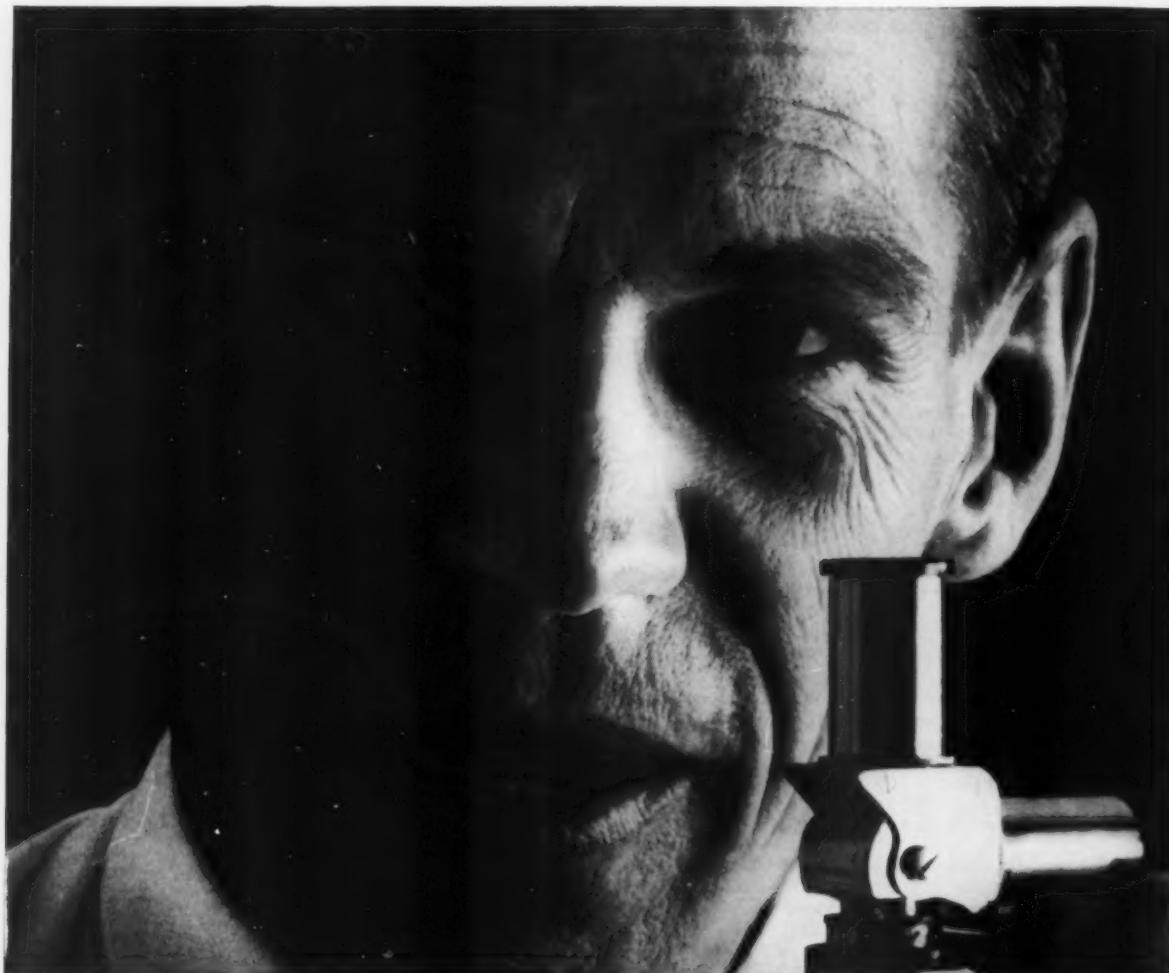
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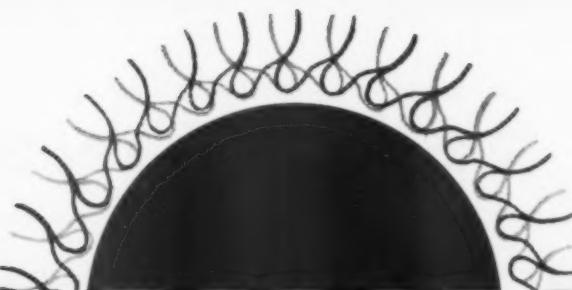


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REACTIONS

Odorless alcohol

I am a subscriber to your magazine, and for some time have been manufacturing lotions and perfumes using essential oils of top quality. However, up to the present I have not been able to secure satisfactory results, due mainly to the low grade alcohols manufactured in Mexico. They do not lose their alcoholic odor and this is clearly noted in the lotions and the perfumes. I would appreciate your advising me whether you can send me a sample and estimate of cost of odorless alcohol or indicate to whom I can apply.—E. S., Mexico

All we can tell you is that the samples of Mexican alcohol which we have examined all seem to be quite satisfactory. Our suggestion to you is to use the type that is denatured with diethyl phthalate (for Colognes) and then treat this with deodorizing carbon. We have seen some very good grades of alcohol denatured with citronella oil for use in lotions, but for perfumery purposes this requires cleaning up.

Lipstick bases in bulk

We would like to know the names of some American firms manufacturing lipstick and nail polish willing to supply us with bases in bulk. By base we mean a mass of the finished product, non-colored, for us to mix with the coloring materials that said

firms would also furnish us, to obtain the shades and according to formulas that they would indicate to us.—P. A. A., Holland.

It is doubtful whether any supplier of bulk lipstick or nail polish in the United States can send you the material without color. Generally, the color is always incorporated in the processing. However, we suggest that you contact the companies whose names are going to you by letter.

Organophilic titanium oxides

You published an article on "Organophilic Titanium Oxides." Could you please send us the name and address of a supplier of these materials?—G. T., India

The supplier of the materials mentioned in the article is Le Titane Francais, Le Havre, Seine Maritime, France. For samples and literature you may write to Ste. Thann et Mulhouse, 91 Rue Fg. Saint Honore, Paris 8°, France.

Cetab producer

We would like to know the manufacturer or supplier of "Cetab," the trade name for cetyltrimethylammoniumbromide.—B. E., Oregon.

Cetyltrimethylammoniumbromide may be obtained from the following companies under their respective trade names: CTAB; J. T. Baker Chemical Co., Phillipsburg, N. J. and CETAB; Fine Organics,

Inc., 205 Main Street, Lodi, N. J.

Cellulose enzyme

We are interested in the cellulose depolymerizing enzyme mentioned in a past issue. Whatever information you can send us on this product will be greatly appreciated.—W. R., Wisconsin.

This is CELLASE 1000 and may be obtained from Wallerstein Co., Wallerstein Square, Mariners Harbor, Staten Island 3, New York.

Formula for spirit gum

We would like to obtain a formula for spirit gum for use as an adherent as well as sources of supply for the required materials.—P. D., Colorado.

All we can give you is an old-time formula which apparently worked quite well in its day. This consists of the following:

Resins	25%
Castor Oil	3-5%
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Among the resins used are the following: Sandarac, rosin, mastic, benzoin, tolu, elemi. Ordinary rosin made from pine is the cheapest and therefore probably was the principal resin used. In more recent times, a polyvinyl butyral resin made by Carbide and Carbon Chemical Corporation 30 East 42nd Street, New York 17, has also been suggested in place of the other materials. We hope this gives you a starting point for your experimental work.

AMERICAN AROMATICS

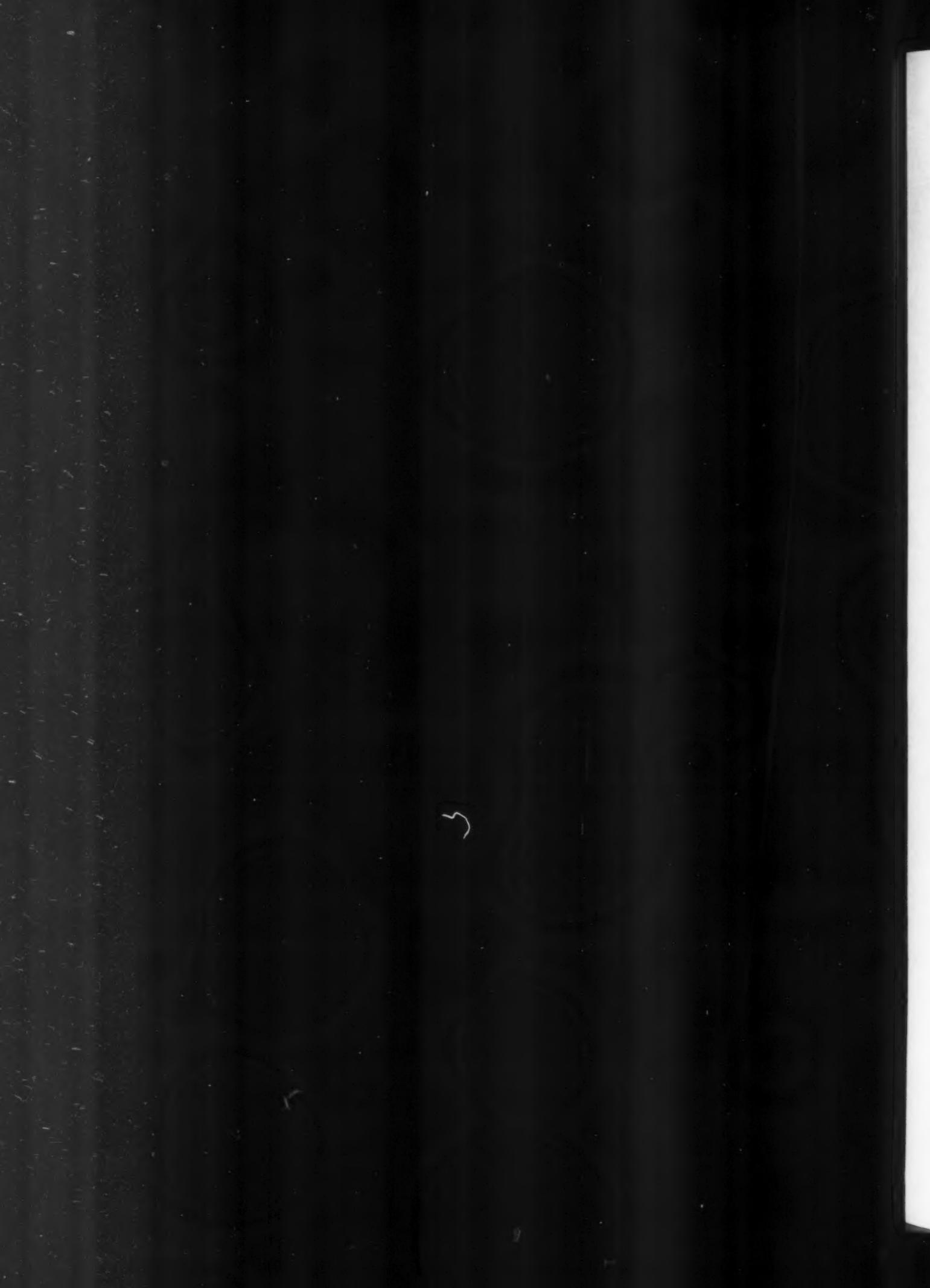
• Perfume Compositions

• Essential Oils

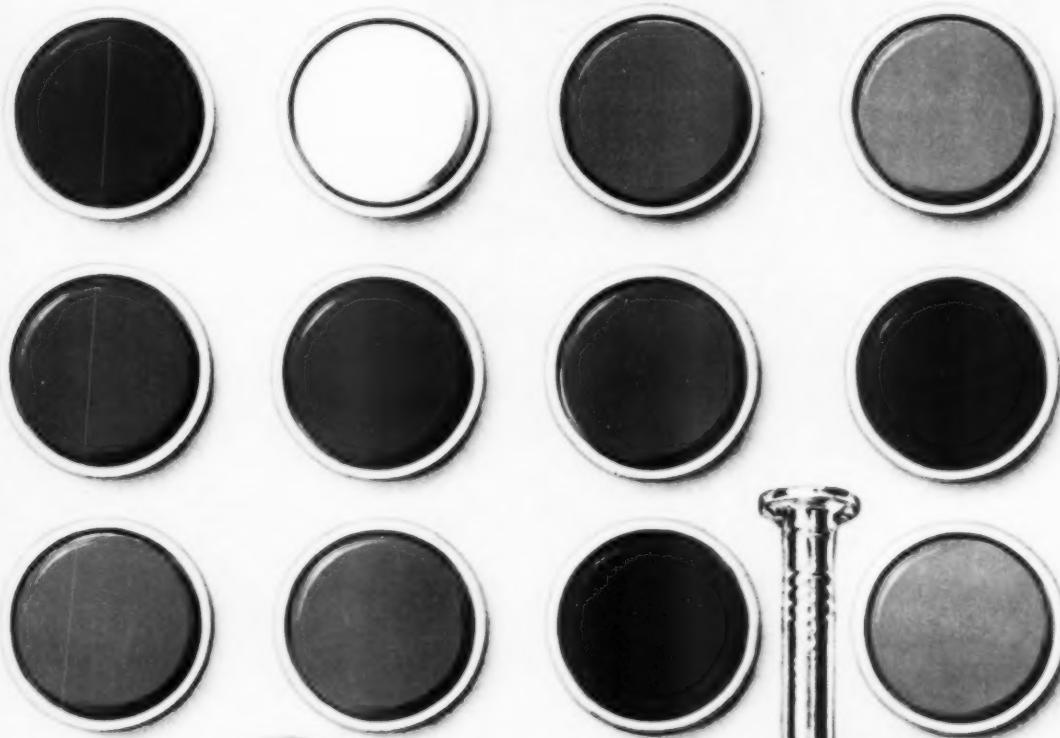
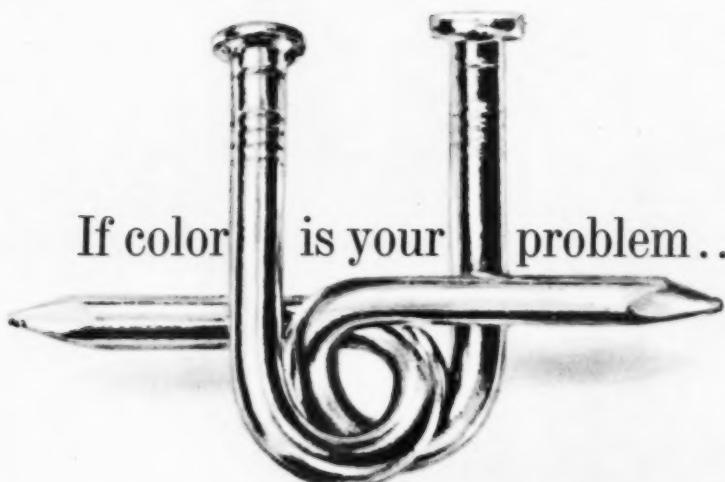
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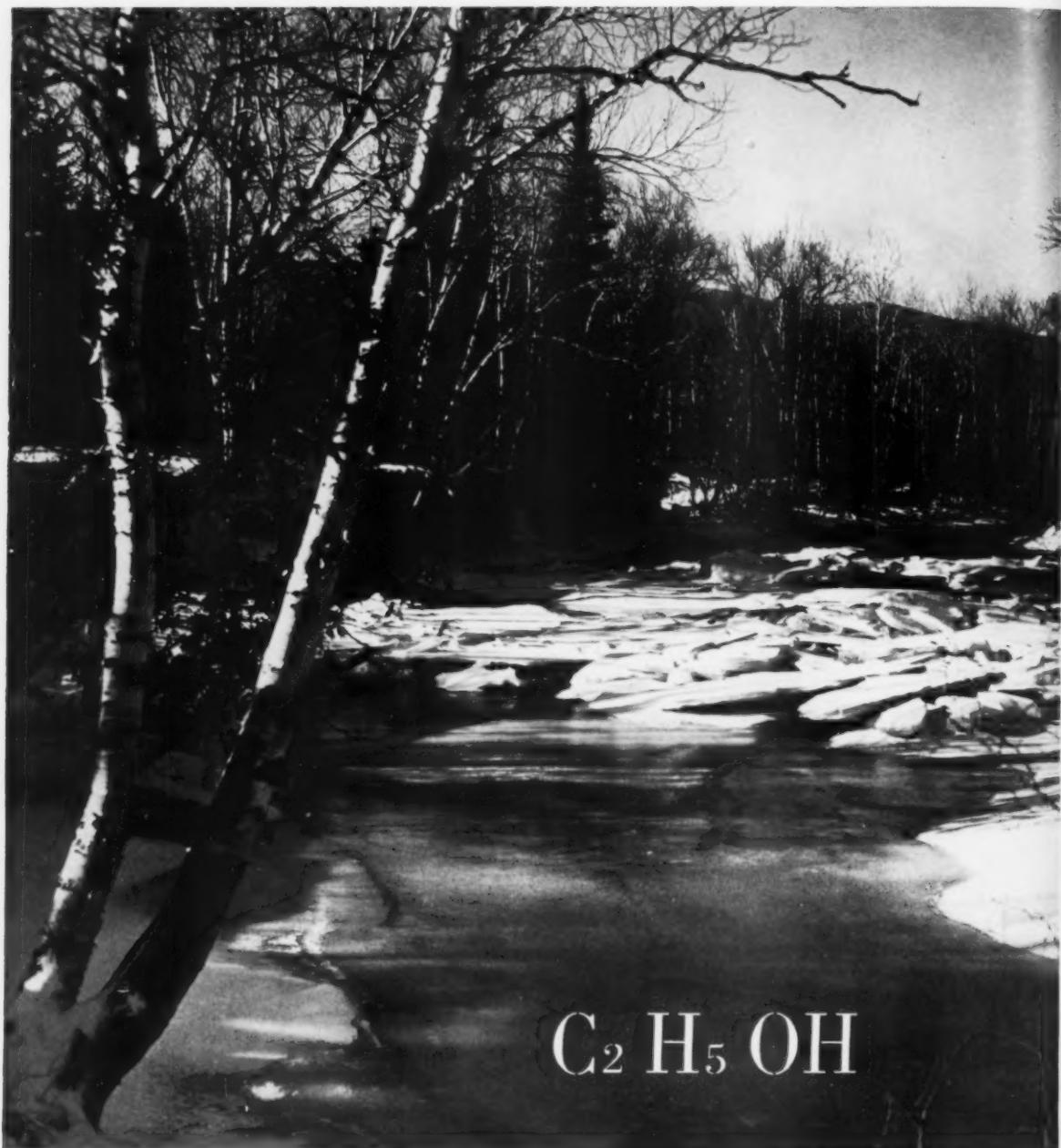


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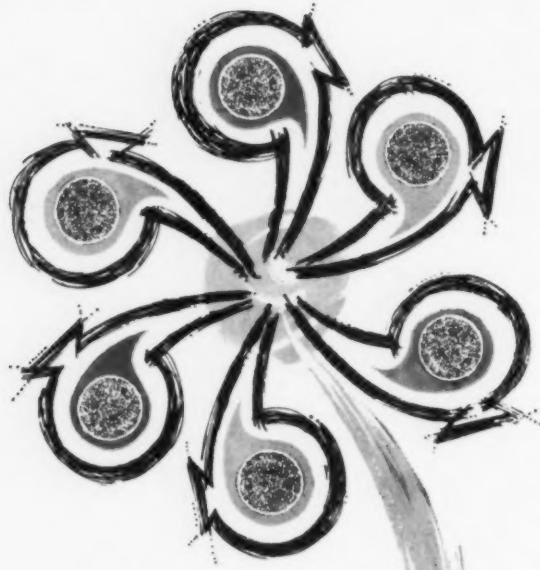
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Notes

Recent articles in European publications attest to the usefulness of pyridoxine tripalmitate in cosmetic preparations. The material is now commercially available in the U.S.A. (Fallek Prod. Co.). . . . A new germicide, the zinc salt of 1-hydroxy-2-pyridinethione (Vancide Z.P.) is claimed to be skin substantive with a wide spectrum of antimicrobial activity. It is suggested for use in soaps and detergents. Usefulness in shampoo is already covered by U. S. Patent 2,809,971 and application No. 85-005. . . . A novel facial mask based on alginates is covered by U. S. Patent 2,996,432. Resulting product produces a rubber-like mask that dries in less than 10 minutes. . . . Another new antibacterial substance is discussed by Kovacs and co-workers in *Nature* (192, 190, 1961). This material is a polypeptide derived from poly-a-aminodiarboxylic acid esters with diamines.

An interesting side light on the T.G.A. scientific section panel discussion on certified colors (government attitude, manufacturers' position as a result thereof, etc.) is the fact that a lot of decisions have to be made in Washington before anyone knows where they stand. Thus if lanolin is used as an emulsifier or coupling agent, it is O.K. to use and does not come within the scope

of color additive regulations. However, if you use it to color a cosmetic—and this is just the start of other loaded questions. Oh! Why can't we find the middle of the road sometime?

Medalist Ray Reed pulled a neat surprise on wife, Ruth, when he asked her to accept his Society of Cosmetic Chemists Medal Award as co-medalist. A lovely thought, Ray. . . . And I'm sure Bob Kramer was as touched as he was surprised when he was given an honorary membership in the Society as a token of remembrance for his eleven years work as Society Secretary. We will miss you, Bob!

Essential fatty acids

The battle about the need for certain fatty acids has been going on for about 30 years. Insofar as cosmetics are concerned it started with August Pacini who described them as Vitamin F, a designation applied to the essential fatty acids (EFA) by a worker of the time.

It is therefore, significant that the J.A.M.A. (178, p. 930, 1961), devotes a report to this subject under the aegis of the Council on Foods and Nutrition. Holman, author of this report, points out the misconceptions regarding EFA and summarizes the present state of knowledge on this subject in the following way:

"When *dermatitis* is used as the criterion of deficiency in rats, only linoleic acid and closely related fatty acids exhibit activity. However, when *growth* is used as the criterion, many other fatty acids including linolenic acid and its related acids, show activity. . . . Linoleic acid is required by many species of animals. Recently, the induction of deficiency in infants has been conclusively demonstrated, and there now can be no question that EFA is required by humans in the same sense that animals require it."

To determine exactly if and how much EFA is needed by humans has been clouded by uncertain factors as sex, age, pyridoxine deficiency, diabetes, hypothyroidism, dietary cholesterol and saturated fats.

Since the first report of Burr and Burr in 1929 on a deficiency disease resulting from excluding EFA from the animal diet, this subject has been argued back and forth. Perhaps now all efforts can be bent toward improving man's health from the judicious use of these plentiful substances. It is therefore all the more momentous to have this report appear.

Whose fault

The number of legal actions against cosmetics and their manu-



facturers is on the increase as everyone knows. Whether the cosmetic is at fault is often hard to determine if at all. The following is an "iffy" case in point.

A recent letter to the *J.A.M.A.* (178, 199, 1961) discloses that the medicinal product, MER/29 has a side effect, the loss or "thinning" of hair. Usually, the hair regrows after discontinuance of medication. Vaginal bleeding and dermatitis are other reported undesirable side effects.

In the correspondence referred to above, 2 white female patients, aged 70 years, were involved. Both patients reported loss of half their hair. Although one patient reports that loss has been reduced by about 80%, the other patient claims the hair loss continues, in spite of discontinuance of the medication. Can you imagine the potential cosmetic implications, had the patients simultaneously used a new hair or scalp preparation?

Furthermore, hormone creams are used most widely by older

women. One of the symptoms of overdose is vaginal bleeding (sometimes called "spotting"). Can you imagine a patient's reaction—perhaps her doctor's as well—if she were postmenopausal, and if she were being treated with MER/29 and had been using a hormone cream, and if she showed "spotting"?

BOOK REVIEWS

The Pharmaceutical Pocket Book, 17th Edition, The Pharmaceutical Press, London W. C. 1, 1960. Price £ 1.10/-

Although the early editions of this book were intended for pharmacy students, the practicing pharmacist came in for consideration in 1925.

The present edition has eight new sections to make it more useful.

This handbook, for that is what it really is, is a thumbnail course in pharmacy. As such, the various

sections have to be brief. However, it does keep the British pharmacist up to date on forensic aspects of his profession. Weights, measures, conversions, alcoholic strengths, pH, microbiology, radiology, pharmacology, biochemical analysis, poisons and antidotes are just some of the chapter headings.

In a book of this type, going through so many editions, it is easy to miss a development here and there. Thus, the table of atomic weights on page 561 should be updated from 1957. In the light of a smaller world due to the speed of travel, the tables of weights and measures should include U. S. variations. To make the anti-freeze solutions (page 199) more realistic, the ethylene glycol-water mixtures table should be replaced by propylene glycol-water mixtures, since propylene glycol is more widely used in pharmacy than ethylene glycol. However, these points do not detract noticeably from the value of this useful handbook. (M. G. deN.)

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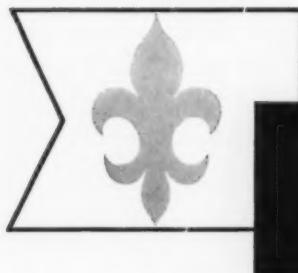


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Dragoco Inc., Totowa, N. J.

OUR EYES CONSTANTLY subject the outward appearance of our environment to a critical inspection.

A pleasing figure and dress—whether in men or women—attracts our eyes approvingly, but it is the prerogative of the daughters of Eve to stimulate our fancy pleasantly by their charming appearance, and thus increase our *joie de vivre*.

When this attractive natural atmosphere is stressed by a delicately balanced emanation of scent, it emphasizes the personal satisfaction . . . the source of delight deriving from the perfume . . . with mysterious dynamism.

The nature of modern perfume is far more changeable. It has become a part of our daily life; its marked olfactory character is adapted to the type of the wearer. Scent and personality are harmoniously linked, for modern perfume is no independent and timeless conception.

The great range of odorants and original perfume bases has stimulated creative intuition in an almost challenging manner to meet the individual peculiarities of man.

Not so very long ago perfume represented in the first place homage to women; a coquettish caress in

many forms. The character of scent was successfully individualized, for instance youthfully feminine for fair woman; dreamily elated for the brunette; charmingly original for the Titian blonde, and full of oriental mysticism for the dark-haired woman.

Due to the tremendous increase in the use of cosmetics, which are nowadays regarded as part of our regular physical culture, people became inclined to favor scent, and today's constant efforts in providing these products with an attractive perfume represents an aesthetic increase in their value.

In these days, however, cosmetics are no longer the sole prerogative of the "fair sex". The "lord of creation" is also taking an increasing pleasure in cosmetics, and the active cosmetics industry makes sure that he is not neglected. The new field of so-called "men's cosmetics" is expanding and becoming more and more lively. Electric shavers alone demand the use of shaving lotions in order to facilitate shaving and preserve the skin, while the consumption of perfume oils for this "gentlemen's cosmetic" already exceeds the quantities of such oils used in women's Eau de Colognes.

There will also be a tremendous boom in men's cosmetics in the coming years. Men owe it to their

social position to look healthy and well-groomed, to devote more attention to their skin, which mirrors age, and at any rate to preserve a youthful appearance for a long time.

To render their personality more attractive by means of a suitable perfume, men feel urged to serve aesthetics in an unassuming way by a tartly-fresh, unobtrusive perfume note.

It is hard to draw a line between perfumes with male or female scent characteristics because the olfactory perceptivity of both sexes differs less qualitatively than one might at first think.

After comprehensive studies the best-known odors can be arranged according to their popularity in approximately the following order:

Men:

1. pine-needle	14. raspberry
2. lilac	15. pineapple
3. rose	16. lemon, tobacco
4. violet	17. lavender, menthol
5. coffee	18. cinnamon
6. cedar wood	19. peach
7. wintergreen	20. wine
8. apple, peppermint, lily of the valley	21. heliotrope
9. chocolate	25. clove
10. carnation	28. jasmine
11. orange	29. caraway, Russia leather
12. strawberry	36. oil of turpentine
13. vanilla	43. garlic
	44. sweat

Women:

1. rose, lily of the valley	14. clove and peppermint
2. lilac, pine-needle	15. peach
3. balsamic odors	16. lemon
4. coffee	17. wine
5. strawberry	18. melon
6. raspberry	19. maple
7. violet	20. black tea
8. cedar wood	21. jasmine, heliotrope
9. pineapple	23. menthol, nutmeg
10. apple, vanilla	25. caraway
11. wintergreen, chocolate, carnation	30. tobacco
12. orange and cinnamon	37. oil of turpentine
13. lavender	43. garlic
	44. sweat

An interesting fact about this odor test is the one-sided preference of women for lily of the valley, strawberry and raspberry, and of men for peppermint and tobacco.

Perfumes with a masculine note, which have been familiar already for decades, such as Jockey-Club, Peau d'Espagne, Russia Leather, Opopanax, new-mown hay, etc., as well as tartly spicy fougere and lavender perfumes, all had a strongly flowery touch—corresponding to the taste of the times—so that they were somewhat feminine in character.

Modern perfumes with an emphasis on the masculine nuance offer scent motifs of grass, herbs, fresh woods, golden yellow tobacco fields, moss and lush greenery, or of moss and fern. Three outlines of perfumes will demonstrate the build-up of male scent notes:

Outline 1:

40 gm. Aldehyde C 11 10%
5 gm. Alcohol C 11 10%
10 gm. Aldehyde MNA 10%
120 gm. Bergamot Oil Regg.
30 gm. Iso-Bergamate
30 gm. Neroli Oil Bigar.
10 gm. Karo Karonde concr. 50%
40 gm. Clove Blossom Oil artificial
50 gm. Zdravetz Oil, la, Bulg.
20 gm. Muguet
20 gm. Ylang-Ylang Oil extra
60 gm. Jasmine Flower Oil art.
50 gm. EME extra light 6033
30 gm. Mouscal 5237
60 gm. Vetiver Oil la, Reunion

30 gm. Vetiveryl Acetate special
20 gm. Patchouli Oil la
30 gm. Orange Peel Oil, Guinea 10%
15 gm. Cedryl Acetate
15 gm. Cedar Wood Oil
60 gm. Phenyl Ethyl Alcohol
20 gm. Helioflor concr. 8202
15 gm. Olibanum Oil
30 gm. Santalol
90 gm. Oak Moss light, 20%
10 gm. Styrolyl Acetate
20 gm. Musc Ketone
20 gm. Benzoin Extract, Siam 10%
40 gm. Cuirisal 3085
10 gm. Ambrofix 1865
1000 gm.

Outline 2:

5 gm. Aldyl 2451
10 gm. Aldehyde C 11 10%
125 gm. Bergamot Oil, Regg.
35 gm. Mandarin Oil
65 gm. Iso-Bergamate
50 gm. Borenia 1395
100 gm. Lilac White
150 gm. Magnolia Blossom Oil art.
115 gm. Muguet
20 gm. Ylang-Ylang Oil
40 gm. Phenyl Ethyl Alcohol
5 gm. Styrolyl Acetate
45 gm. Girofle
20 gm. Opopanax Oil
15 gm. Bayleaf Oil
40 gm. Methyl Ionone
50 gm. Vetiver Oil, Reunion
45 gm. Vetiveryl Acetate
30 gm. Sandalwood Oil, East Indian
15 gm. Musc Ketone
15 gm. Musc Ambrette
5 gm. Ambropur
1000 gm.

Outline 3:

100 gm. Bergamot Oil, Regg.
40 gm. Lavender Oil M.B.I.
30 gm. Sage Muscatel Oil
15 gm. Lemon Oil Messina
25 gm. Orange Peel Oil la, Guinea
20 gm. Ylang Ylang Oil Madagascar
20 gm. Mace Oil
20 gm. Sweet Basil Oil
30 gm. Patchouli Oil
40 gm. Cedar Wood Oil
50 gm. Sandalwood Oil
60 gm. Vetiveryl Acetate
30 gm. Cedryl Acetate
10 gm. Costus Oil 10%
20 gm. Geranium Oil, Bourbon
10 gm. Orris Oil concr. Robertet
20 gm. Iromuskon DP 16654
30 gm. Muscinton DP 46536
20 gm. Tonkarin 9032
10 gm. Aldehyde C 10 10%
20 gm. Aldehyde C 11 10%
25 gm. Aldehyde C 12 10%
35 gm. Coumarin
30 gm. Cinnamic Alcohol from storax
30 gm. Oak Moss Oil light
40 gm. Benzoin Extract, Siam
30 gm. Olibanum Extract
10 gm. Ambrofix
60 gm. Jasmine Blossom Oil
40 gm. Red Rose
40 gm. Iraldeine
60 gm. EME extra green 6032
1000 gm.

The following three pointers can serve for female perfume notes:

10 gm. Aldehyde C 12 L. 10%
40 gm. Aldehyde C 12 MNA 10%
70 gm. Bergamot Oil, Regg.
20 gm. Lemon Oil la, Mess.
20 gm. Sage Muscatel Oil
60 gm. Ylang-Ylang Oil
70 gm. Hydroxycitronellal
30 gm. Cinnamic Alcohol
20 gm. Ionone
30 gm. Methyl Ionone
50 gm. Sandalwood Oil, East Indian
10 gm. Vetiver Oil la
140 gm. Jasmine Blossom Oil art.
80 gm. Rose de Mai
30 gm. Vetiveryl Acetate
30 gm. Coumarin
10 gm. Musc Ambrette

20 gm.	Alpha-Hexyl Cinnamic Aldehyde
120 gm.	Labdanum Extract light 1:1
40 gm.	Musc Ketone
10 gm.	Helioflor concr. 8202
20 gm.	Vanillin
20 gm.	Red Rose
50 gm.	Cedryl Acetate
1000 gm.	
110 gm.	Bergamot Oil, Regg.
30 gm.	Iso-Bergamate
15 gm.	Lemon Oil Ia, Messina
35 gm.	Nerolyol
15 gm.	Aldehyde C 10 10%
30 gm.	Aldehyde C 11 10%
5 gm.	Aldehyde C 12 L. 10%
10 gm.	Aldehyde C 12 MNA 10%
20 gm.	Aldehyde C 14 (Peché) 10%
140 gm.	Lilac Blossom Oil art.
60 gm.	Jasmine Blossom Oil art.
30 gm.	Ylang-Ylang Oil
15 gm.	Alpha Hexyl Cinnamic Aldehyde
25 gm.	Muguet
50 gm.	Red Rose
30 gm.	Carnatin
10 gm.	Geranium Oil, Bourbon
30 gm.	Daphne Blossom Oil
30 gm.	Vetiveryl Acetate
20 gm.	Patchouli Oil Ia
30 gm.	Sandalwood Oil, East Ind.
40 gm.	Vertilal C 2044
10 gm.	Mace Oil
20 gm.	Cinnamic Alcohol
10 gm.	Helioflor concr. 8202
30 gm.	Coumarin
10 gm.	Musc Ambrette
30 gm.	Tonka Extract 10%
10 gm.	Castoreum Extract 5% in alc.
25 gm.	Olibanum Extract
25 gm.	Benzoin Extract, Siam
20 gm.	Ambrofix 10%
20 gm.	Oakmoss Oil, light
10 gm.	Ambropur
1000 gm.	

The following type of scent is a polyvalent perfume. This slightly tart, spicyly vigorous scent appeals to both sexes, it is still feminine, but already tends towards the masculine type of perfume. The active business and sportswoman loves this kind of perfume. She does not feel comfortable enveloped by the unobtrusive breath of a cultivated garden's scent, she has turned away from the purely feminine odors which she finds too sentimental.

50 gm.	Bergamot Oil, Regg.
30 gm.	Petit grain Oil
20 gm.	Lemon Oil, Mess.
30 gm.	Orange Peel Oil, Guin.
50 gm.	Rosevertol 2031
20 gm.	Vertilal 2029
50 gm.	Jasmine Flower Oil
200 gm.	Methyl Ionone
100 gm.	Ionone
100 gm.	Iso-Eugenol
75 gm.	Eugenol
30 gm.	Opoponax Oil
25 gm.	Olibanum Oil
30 gm.	Artif. Neroli Oil
10 gm.	Tarragon Oil
10 gm.	Patchouli Oil
5 gm.	Cinamyl Cinnamate
10 gm.	Oakmoss Oil light
10 gm.	Heliotrofine
10 gm.	Helioflor concr. 8202
25 gm.	Coumarin
25 gm.	Musc Ketone
35 gm.	Vetivenon 1781
1000 gm.	

Refreshing, slightly fruity top-notes are indispensable in modern perfumes for men and women. It can be seen from these perfume outlines that citrus oils are used in various combinations from purely fruity to the clear Eau de Cologne type. These are combined with aldehyde complexes and small amounts of higher fatty alcohols. The transition from the citrus top note to flower odors can easily lead to glaring dissonances. Spicy odors, such as zdravetz oil, sage muscatel oil, rosewood oil, and green notes are combined with the

scent of the flower calyces (Rosevertol, Vertilal, etc.) in order to bridge the gap. Flowery structural components also play an important part in perfumes with a masculine scent note. Whether these modifications of flower odors are reminiscent of nature awakening in springtime, or incline more to the perfumed miracles of summer, they are always indispensable due to their charming reminder of nature, for thus life and warmth are introduced into a composition. These flowery odors combine harmoniously with the essential oils and notes of precious wood, as well as with the fixing components.

Scent bases of an individual olfactory character are used in order to impart originality to masculine perfumes. Carrier elements they are based on are odorants so far unknown, and it is hardly possible to achieve the necessary original olfactory features by means of the familiar individual constituents. These scent bases are also indispensable building units in perfumes for men. Such a scent should have a characteristic, representative effect, and should be more spicy and tart than the feminine perfume. The flowery effects do predominate more in the latter, with soft moss bases in the fond, while opopanax complexes and notes reminiscent of incense in the fond are preferred for the masculine perfume.

Mens perfume of the future

The future perfume for men will also be a fantasy scent, but little reminiscent of any previous product, that is, with a scent note hard to identify, while feminine perfumes will always appropriately take nature and her train of blossoms as their model.

The fragrant flower—that oft-praised image of grace and delicate beauty—forms part of the basic harmony of feminine perfume.

The blossoms of some choice plants emit the noblest fragrances created by nature in the vegetable organism. And while the flower develops to ever greater beauty in a short lifetime, its scent comes to perfection and is exhaled with the dying blossom.

Flower fragrance imparts to every perfume that incomparable bloom of aroma, and a harmonious bouquet.

Upon surveying the scent of products for men's cosmetics and also the so-called "perfumes for men", we can say with satisfaction that they have adhered to the demands of aesthetics, and that originality was not achieved at the expense of extravagant, tasteless exaggerations.

Since the characteristic masculine olfactory note could be achieved only by fantasy scents, and since the masculine scent notes known for years no longer satisfied modern taste, we were faced with entirely new problems in perfumery. The boom in specialized cosmetics for men, which will reach substantial further heights, shows that the perfuming problem has been solved in a very attractive way, for we buy only what smells good.

But perfumes for men are also gaining in popularity, because men, like women, do not regard perfume as a luxury which can be dispensed with, but as a daily source of new satisfaction and assurance. Anyone who is unobtrusively in 'good odor' has an enlivening and attractive effect.

Fragrant Flowers and Leaves

Part 3. — *The Elaeagnaceae*

Part I of Fragrant Flowers and Leaves covered the Apocynaceae (Dog Bane or Periwinkle family). It was published in the April 1961 issue. Part II on the Acanthaceae (Bear's-Foot Family) appeared last month.

BY EDWARD S. MAURER, F.L.S.
W. J. Bush & Co., Ltd., London

The Oleasters or Wild Olives are briefly introduced in the garden manuals as hardy deciduous and evergreen shrubs and trees introduced from the Orient into Western Europe about 1600. They are particularly interesting for their ornamental leaves, which are a whitish-green and often clothed with a scaly indumentum, and also for their minute creamy fragrant blossoms.

This is one of the numerically small orders comprising only three important genera and about 50 species, natives of the Northern hemisphere. But what it lacks in magnitude is compensated by the incidence of unique fragrances, of which little is mentioned in the literature. Yet by gleaning among sundry floricultural journals, some very interesting points arise.

Etymology

It would appear that *oleaster* is the Latin equivalent for the Wild Olive, while the somewhat awkward-looking Greek term which bestows its name upon the Order, resolves itself from *elae/agnus* into *elaia*, the True Olive Tree, and *agnus*, meaning a plant like a willow in leaf. We are reminded that the substantive *elaia* is embodied in the pasty solid elaidic acid formed by the action of nitrous acid upon oleic acid, and in passing, that the True Olives belong to the N.O. *Oleaceae* and the *Olearia* to the N.O. *Compositae*.

Hippophae: The second member of this family is the genus *Hippophae*, the Sea-buckthorns. Here we find the Greek prefix *hypo*, signifying under, and the verb *phaino*, to show light, an allusion to the white undersides of the leaves. This is a penchant shared particularly with the True Olives, willows, birch and many other trees. Other authorities suggest the name is derived from the Greek: *hippos*, a horse and *phaos*, light, the herb being at one time used in the Orient

to alleviate dust-induced diseases of the animal's eyes. **Shepherdia:** The name of John Shepherd, once curator of the Liverpool Botanic Gardens is commemorated in the genus *Shepherdia*.

We may well-introduce this study by quoting D. McDonald, for in his book on "Sweet-smelling Plants," (1895) under *E.hortensis*, he remarks: "A deciduous shrub, native of South Europe, largely grown in English gardens for its pretty yellow flowers, which are produced in great abundance in the Spring and perfume the air for a considerable distance around.

"*E. orientalis* is a half-hardy variety from Persia; and another species indigenous to the southern parts of North America is *E.parvifolia*, a variety which has attracted considerable attention because of its peculiar habit of growth, its remarkably beautiful foliage, the delicious fragrance of its blooms and the interesting manner in which it fastens its branches to whatever it meets. Its blossoms are so modest, only appearing on the underside of the branch, as if to hide away from the gaze of human beings, and so very diminutive that they would escape observation were it not for their odorous smell. You may be some distance from the shrub, and a waft of coy fragrance greets you. Its sweet breath leads you to the shrub, and still you wonder from whence it comes. You are repaid for your search, for you find the sweet little flowers on the underside of the branches, and are more than ever surprised at their wealth of fragrance."

In his "Plant Hunters of Manipur" (1952), F. W. Kingdon-Ward remarks of this part of Burma that: "One might pass by the common Asiatic Buckthorn, *Elaeagnus latifolia* when out of flower, and not miss much. It is an untidy sprawling shrub, and the dull pewter leaves—despite the reddish gold flecks in them—hardly deserve notice. Even the stiff little flowers

are inconspicuous, though they clothe the shoots with a yellow incrustation. But it is impossible to pass by this Buckthorn when it is in flower, pouring waves of fragrance into the air . . . A very similar, but neater-looking shrub (is) *E.umbellata* this flowers a fortnight later, but is not very different from *E.latifolia* to look at; smaller perhaps, less thorny and possibly sweeter. Both grew in the thicket . . . the orange fruits (being edible) were greedily gathered by the village boys."

From Firminger's "Manual of Gardening for India" (1904), we learn that *E.conferta* is the Indian Wild Olive, the fruit of which is of the form and size of a damson, having a stone in the center, and when ripe is of a pale red or cherry color. It is very acid, but when sweetened and cooked makes a very agreeable compote. The plant is a large scented shrub of an ornamental character from the silvery appearance of the under-surface of the leaves.

A supplementary opinion is to be found in G. A. C. Herklots "Hong Kong Countryside", (1951), where he mentions: "A scented shrub widely distributed in the Colony is *Elaeagnus* . . . the genus is easy to recognize because the lower surface of the small leaves, the petioles, the young shoots, the flowers and to a lesser extent the fruits, are covered with a scurfy powder which appears to have been made of silver, bronze and gold dust . . . the fruits are pink or pale red when ripe and contain a single seed. They are acid, but quite edible raw or can be cooked to make a good jelly. A Philippine species is called Lingaro and is extensively cultivated for its fruit."

Also mentioned for their ornamental appearance in Indian gardens and renowned for the fragrance of their yellow blossoms are *E.dulcis*, *E.pungens* and a dozen or so more varieties.

Reference to other tropical texts detail the fragrant *E angustifolia*, the narrow-leaved Oleaster or Zucchinoil plant, while *E.argentea* is the Missouri Silverberry or Silver-leaved Wild Olive.

Oleaster fragrance

So far, none of these accounts offer any suggestion regarding the fragrance-pattern of the Wild Olives, but we find an interesting osmical prelude in the American text, namely, "Fragrance in the Garden" by Norman Taylor, (1953), wherein he records his impression of *E angustifolius*, the Oleaster or Russian Olive as: "A shrub or small tree, 10-20 feet high, of the Mediterranean Region, called by the Portuguese the Tree of Paradise because of its extraordinarily fragrant yellow flowers . . . these are relatively small and inconspicuous, half hidden by the leaves, but exhaling such a perfume that maidens are said to blush with expectancy and brides with memory . . ."

In his "Autumn" chapter we find a more detailed pointer for here he recounts: "Quite naturally Autumn is the time of waning fragrance, soon to usher in sere Winter. Doubly welcome consequently is an extremely fragrant shrub from Japan, *Elaeagnus pungens* . . . its quite inconspicuous flowers appear in October and provide a delightful autumnal odor of spicy pungency, mixed with a more languorous fragrance."

In A. G. L. Hellyer's "Garden Plants in Color", (1958) the author briefly records of *E.macrophylla*

that "this is an evergreen shrub with big leaves which are green above and silver beneath. Its silvery flowers are not very conspicuous, but they are fragrant and produced in autumn when few shrubs are in bloom."

In my opinion, I do not think that unless one has had the opportunity of approaching isolated specimens of the blossoming Oleasters during the heat of the day and cool of the evening, that it is possible to osmically analyse and store in the odor-memory the unique and peculiar redolence of these blossoms.

I have examined the fragrance-patterns of the large chalice-like blossoms of the magnolias, rhododendrons, water lilies and sundry trumpet-flowers which appear to be charged with a common 'high-voltage' osmical element which carries the fragrance over a considerable distance, and I believe this to be due to the presence of methyl anthranilate complexes.

Likewise we find that the fragrance of such diminutive blossoms as of the Alyssums, hawthorns, cotoneasters, viburnums, saxifrages, clearias and myrtles is compensated by the presence of another powerful disseminator which I have reason to think is due to complexes of cuminic aldehyde.

Genus *hippophae*

There are about half a dozen species, the most important of which is *H.rhamnoidea*, the Sea-buckthorn or Sallow-thorn, having narrow willow-like leaves covered all over with silvery scales (lepidote), insignificant slightly-scented whitish flowers, stiletto-like thorns, and later in the season, vivid orange berries yielding an aromatic juice used in some parts of the Mediterranean as a substitute for henna, and therefore of interest to the cosmetic chemist as a hair colorant. Botanically, it is noted that a male plant must be grown near the female shrubs so that wind pollination can be effected. Incidentally, these shrubs find extensive employment along the sea-coast for fixing sands.

To conclude this monograph I would remark that one of the most useful source-books on my shelves is the large volume by Lady Rockley. This is devoted to "Wild Flowers of the Great Dominions" (1935); here under Oleasters she mentions a small deciduous bush peculiar to North America. This is the Soapberry or Brue (as it is called by the French-Canadians). The Latin name is *Shepherdia canadensis*, and it is closely allied to the European Sea-buckthorn. Another species *S.argentea* is known from its fruit as the Missouri Buffalo-berry or Beef-suet tree from the fatty pulp of the fruit. The whole plant is silvery in appearance and a related species is known as the Wolf-willow or Silver-berry. This is even more silvery, as not only the leaves and stems but also the edible fruit is lucent. Incidentally, the tiny yellow blossoms of these shrubs are heavily honey-scented.

Summary

In summing-up, this minor order presents the Oleaster fragrance, an exotic nuance of remarkable disseminating power. Simulations based upon aubepine and iso-eugenol, backed by ylang and cuminic-antranilate complexes offer the Perfumer some interesting quintessence of high florality.

Abstracts from the scientific section of the Toilet Goods Association November 30, 1961

The Determination Of Bacteriostats In Cosmetics: p-Hydroxybenzoates, Dichlorophene, and Hexachlorophene

*P. D. Derry, M. Holden and S. H. Newberger,
Division of Color and Cosmetics, Food and Drug
Administration, Department of Health, Education
and Welfare, Washington, D. C.*

The experimental data indicates the proposed procedure to be of sufficient accuracy and precision for the analysis of p-hydroxybenzoates, dichlorophene, and hexachlorophene in cosmetics. The spectral curves identify the bacteriostats.

The proposed procedure isolates the bacteriostats in definite fractions of the eluting solvents. However, this does not preclude materials other than the bacteriostats being eluted. In such cases the eluted fractions may serve as the starting point for further separation procedures. For example, the hexachlorophene isolated from a toothpaste was heavily contaminated with an ultraviolet absorber, probably a flavoring agent. Our experience indicates that, in cosmetics, contaminants are more likely to be eluted with the p-hydroxybenzoates rather than with the other bacteriostats.

Although the proposed procedure gives details for the determination of p-hydroxybenzoates, dichlorophene, and hexachlorophene, it could be applicable to many more bacteriostats. Undoubtedly, some modifications will be necessary. These may include collecting the eluting solvents in smaller fractions or varying the concentrations of the alcohol solutions. Changes in the immobile solvent may also be helpful.

Use Of Water Soluble Certified Dyes In Oily Media

*Robert L. Goldemberg, Shelia O'Leary
and Nathan A. Ziskin, Shulton Inc.*

Due to the limited scope of testing programs underway to "clear" color additives by the January 1963 deadline imposed under the Color Additives Act of 1960, our laboratory investigated the possi-

All of these papers have been published in full in the Proceedings of the Scientific Section of the Toilet Goods Association, for November, 1961. Copies are free to members, and have been mailed to them. Copies are available to non-members at a price of \$1.50 each, from the Toilet Goods Association, 1270 Avenue of the Americas, New York 20, New York.

This publication is issued twice each year, and is composed entirely of the proceedings of the two meetings of the Scientific Section. The annual subscription price is \$2.50.

bility of using water soluble F. D. & C. colors in oily media.

An attempt was made to incorporate eight F. D. & C. dyes into three oily media commonly used in cosmetics—mineral oil, oleyl alcohol, and isopropyl myristate. These three are representative of many fatty materials used in the industry.

Two methods were tried which were successful—use of cosolvents and use of anion-cation complexes. A summary of the results is reported.

Response Of Normal And Damaged Human Skin To Prolonged Topical Treatment With Female Hormones

*Herbert J. Spoor, Ph.D., M.D.
Cornell University College of Medicine*

The improvement noted after use of topically applied female hormones has been attributed to epidermal intracellular edema and to improved emolliency. In the dermis, the changes postulated are fluid retention in the collagen, increased vascularity and improved skin elasticity. Together, these factors are said to rectify actinic damage and ameliorate some of the signs of the skin-aging process. Scientific proof of these clinically observed and postulated changes has not been entirely satisfactory because the experimental tissue used has not been appropriate, the experiments have not been well controlled and have not been of adequate duration to elicit and characterize the more subtle changes involved.

Herein, a comparison of the response of the skins of several experimental animals suitable to topical hormone application is made through micrometer quantitation of epidermal changes. In addition, long term studies on the hypersensitive neurodermatitic skin, the normal skin and the actinically-damaged skin are reported. The quantitative data show that topically applied hormones are effective. Additional perimeters where research could elicit and quantitate will be defined.

Properties And Reactions Of Hair After Treatments With Mercaptans Of Differing Sulfhydryl Acidities

*J. W. Haefele and R. W. Broge
The Procter & Gamble Co., Cincinnati, Ohio*

The reactions of hair with mercaptans of differing sulfhydryl ionization is discussed, and tests made on the treated fibers in a variety of ways are described. Mercaptans of higher sulfhydryl acidity than thioglycolate wave at lower pH. Special behavior is noted for thioglycolamide and its analogs: curling over a broad pH range, from 2-10, with little damage or increased swelling even with long immersion of hair in the solutions. Reasons for this are discussed.

Abstracts from the scientific meeting of The Society of Cosmetic Chemists

November 28, 1961

Patterns Of Sweating In Human Axilla

*D. L. Kirk, Ph.D.; G. Rebell, and C. Della Lana
Colgate-Palmolive Company*

Thermogenic axillary sweating has been studied in over one-hundred college-age men by the quinazolin visualization technique. Three major types of axillary eccrine sweating patterns occur. These patterns are qualitatively constant and bilaterally symmetrical. The physiological and anatomical differences from which these patterns arise will be posited. Comparison of emotionally and thermally-induced patterns demonstrates the existence of axillary eccrine glands which differ in their sensitivity to these two stimuli. Axillary eccrine sweating patterns of pre-pubescent boys and college age women will also be discussed and compared to those of the college age men.

The Cementing Substance Of Human Horny Layers

*Peter Flesch, M.D., Ph.D.
University of Pennsylvania*

Recent Swedish electron microscopic and X-ray diffraction studies have clearly established that in the stratum corneum the keratin fibrils are separated by a non-keratinous matrix. The chemical nature of this matrix is of extreme interest to dermatologists.

All of these papers will be published in the Journal of the Society of Cosmetic Chemists. Subscription to the Journal is \$6.00 to members, and is included in the dues to the Society. The subscription price to non-members is \$18.00 per year in North America, and \$18.90 in other areas of the world.

The Journal is published nine times each year, during January, February, April, May, June, August, October, November, December. Information relative to subscription or memberships is available from the office of the secretary, Mr. Robert A. Kramer, 250 East 43rd St., New York 19, N. Y.

and cosmetic chemists alike. Nevertheless, only few definite data are available.

The reason for lack of information in this important area lies in experimental difficulties. Probably the best approach is to compare normal and pathologic horny layers, because in many scaling conditions the physical and morphologic aspects of the horny layer are altered, leading to sticky and non-permeable scales. In some of these conditions with parakeratosis the keratohyalin granules in the granular layer are not developed, giving a clue the possible morphologic basis of the anomalies in the cementing substance.

Experiments will be described concerning the nature of the cementing matrix and its possible role in the keratinization process.

Biological Evaluation Related To New Legislation

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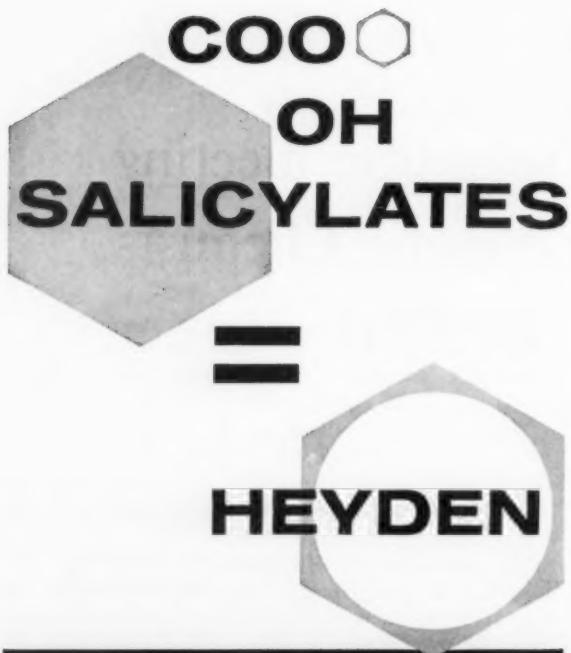
The color additives amendment as well as test programs designed to clear colors for cosmetic uses will be presented. The role of scientists during the developmental phases of additional legislation to regulate the cosmetic industry will be discussed. In addition, attention will be given to the problems created by incorporating specific test procedures into regulations governing the chemical and cosmetic industries.

Patents As Related To The Cosmetic Industry

*I. G. Stone
Director of Research and Patent Examining Group 1
United States Patent Office*

An important segment of the classified search files in the U. S. Patent Office relates to cosmetics and applications for patents on cosmetics are examined in Division 43 of the Patent Office.

Patents may be obtained on new cosmetic chemicals, new cosmetic preparations, processes of making such products and new uses of old materials. The



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basic requirements for obtaining a patent are given.

A number of published decisions are commented upon, illustrating various aspects of patent prosecution and patent litigation involving applications for patent and issued patents in the cosmetic field.

**Recent Developments In Surface Physics
Relating To Cosmetic Science**

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The advances discussed are in capillarity theory and detergency theory.

The deposition and removal of liquids or easily liquefiable solids from irregular surfaces is governed to a great extent by the laws of capillarity. Methods have recently been developed which greatly simplify the quantitative application of these laws to practical situations. In certain instances they enable the spreading behavior of liquids on skin and hair to be predicted rationally as well as empirically. In an analogous manner some of the recent developments in detergency theory, notably the cryoscopic theory of detergency in concentrated solutions, lead to a rational picture of shampoo and skin cleanser action. They serve as a valuable new guide in formulating all types of cosmetic cleansers.

**A Fractional Factorial Experiment
In The Development Of A Shampoo**

*James G. Atherton
Lady Esther Cosmetics*

The effects on viscosity, foam, and foam stability of the concentration of the more important raw materials used in a shampoo are studied by the use of fractional factorial experimentation. The derivation of the experimental design is explained along with the techniques used for estimating the main effects and interactions. Within the scope of the experiment quantitative effects, due to increasing or decreasing the levels of the raw materials studied, are given. The advantages as well as the disadvantages of this type of design are discussed.

Some Uses Of Statistics In Product Development

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Experimental problems of different degrees of sophistication face all research workers. This is a review briefly of some of the varied statistical techniques available to help the researcher in his work. Emphasis is put on the ability to use these statistical methods in the overlapping and sequential manner as the complexity of the problem unfolds. Particular emphasis is given to the blueprint of all research problems, and that is, "Design of Experiments."

Evaluation of Pharmaceutical Emulsions

BY PHYLLIS CARTER, Atlas Chemical Industries, Inc.
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TO DAY, WITH THE ADVENT OF NEW EMULSIFIERS and emulsion techniques, the number of pharmaceutical products formulated as emulsions is increasing. A prime reason for this trend is simply that an emulsion frequently gives the patient his medication in a more appealing or more effective form. Emulsions are easy to apply topically and can be formulated to eliminate oiliness and staining. Usually, an emulsion is not so noticeable on the skin as a non-emulsified product, a major factor in patient acceptance. Emulsified products for topical application sometimes offer a means of obtaining added cleansing action. Emulsion systems also aid in carrying water, an excellent softener to the skin.

Sometimes poor flavor can be masked by emulsifying an objectionable tasting product in a more pleasant tasting medium. In some cases, the rate of medicament release or the rate of absorption can be controlled by choice of emulsifier or emulsification method.

By using emulsions, aqueous and oil soluble ingredients can be used simultaneously. Along with therapeutic and esthetic benefits, substantial savings can often be effected by formulation in emulsion form.

Each emulsion formulator must have a thorough background in all facets of emulsion technology in order to cope with the complex formulation problems he faces daily. It is especially important to know how to evaluate emulsion systems for several reasons: development work can provide a sound basis for choosing a final formulation; the final product can be screened during and after manufacture to assure batch uniformity; and, proper packaging can be selected.

A prime consideration in evaluating any pharmaceutical product is its physiological effect, the response which can be expected from the body when the product is administered. Whenever possible, the final formulation should be studied, although in some cases it is desirable to study individual components. Oral, parenteral, and dermal toxicity must be considered. The rate of medicament release and medicament absorption must be determined. Product pH and bacterial count must be controlled so that no body damage results.

In planning evaluation of the pharmaceutical products which are emulsions, there are other properties which should be considered. They are emulsion type,

particle size, viscosity or consistency, esthetic characteristics, effect on containers and stability. Methods for determining these properties follow.

An emulsion consists of two phases, an internal, discontinuous, or dispersed phase within a second phase known as the external or continuous phase. If the emulsion consists of oil as the internal phase, the emulsion is said to be of the oil-in-water (O/W) type. When the water is the internal phase, with the oil surrounding it as the external or continuous phase, the product is said to be a water-in-oil (W/O) emulsion. Occasionally an emulsion has no well defined internal and external phases; that is, each phase contains droplets of the other phase. In this case, the emulsion is said to be a mixed, dual, multiple, or polyphase emulsion.

Emulsion type is an important consideration in the preparation of pharmaceutical emulsions, especially those intended for topical use. O/W emulsions in general are less oily and consequently less obvious to the touch than W/O emulsions. Frequently, the rate of release of a medicament from a topical product is dependent on emulsion type. O/W emulsions are washable, a major factor in their current popularity in ointment formulation.

In oral formulation, a change in emulsion type can alter mouthfeel, flavor, or medicament absorption.

Differences in emulsion type can also alter the effect which the emulsion has on special containers such as polyolefin bottles.

Dilution

One way of determining emulsion type is by dilution. If the external phase is water, the emulsion can be diluted with aqueous solvents. If the external phase is oil, the emulsion will not disperse and will appear as globules throughout the water. A W/O emulsion will, however, dilute with oily materials.

The dispersibility of other materials in an emulsion follows the same pattern. A water soluble dye will disperse in an O/W emulsion while it will remain undispersed in a W/O emulsion. An oil soluble dye will not disperse in an O/W emulsion but it will color a W/O emulsion. This behavior forms the basis of a second test for emulsion type: dye solubility.

Still another way to determine emulsion type is by determining conductivity. Most aqueous systems, and therefore most O/W emulsions are good conductors. Most oils and, consequently, most W/O emulsions are feeble conductors.

Another, less simple method for determining emul-

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sion type involves microscopic examination of the emulsion under ultraviolet light. Many oils fluoresce, and when W/O emulsions are viewed in this way, the whole field fluoresces. Only a few fluorescent spots will appear in an O/W emulsion.

Paper wetting

Another method which has been used occasionally depends on the wetting action of the emulsion on filter paper. A drop of O/W emulsion will spread rapidly whereas a drop of a W/O emulsion will not.

Cobalt chloride

Another method recently published^[1] is based on the color change of cobalt chloride when it passes from the anhydrous to the hydrous form. Filter paper is impregnated with cobalt chloride by dipping it into a 22% aqueous solution, then drying it. The prepared sheets, which are kept in a desiccator, are deep blue. When exposed to an O/W emulsion, the filter paper becomes pink. Little or no change occurs when a W/O emulsion is placed on the paper. A dual emulsion causes a pink color to develop, but the action is much slower than that noted with O/W emulsions.

These methods are not infallible. For example, a W/O emulsion containing a polyvalent metal soap may conduct electricity. In choosing a method, ingredient properties must be considered.

Particle size

The particle size of an emulsion is usually expressed as the diameter of the globules in the internal phase. If the size is not uniform, the particle size occurring most frequently is used. Particle size is important because it governs the appearance of the emulsion and because it can give an indication of the rate of coalescence of the dispersed phase. The particle size of an emulsion can be estimated from its appearance, using the following guide:

Appearance	Particle Size
Milky white emulsion	> 1 micron
Blue white emulsion	0.1 to 1 micron
Gray semi-transparent emulsion	0.05 to 0.1 micron
Transparent emulsion	0.05 micron and smaller

The most widely used method of determining droplet size distribution is by observation of the emulsion using a microscope fitted with a micrometer eyepiece.

Viscosity or consistency

Viscosity can be defined as a measure of internal friction or resistance to flow. Some emulsions, usually those that are relatively dilute, exhibit Newtonian flow; that is, their behavior when subject to shear can be expressed in terms of a single constant viscosity coefficient. The majority of emulsions are non-Newtonian, because they have different viscosities at different rates of flow in the same apparatus or in different pieces of equipment. A single viscosity determination on this type of product gives an "apparent viscosity" or consistency which is often sufficient for quality control if the same conditions of testing are used for each batch. However, to obtain more complete rheo-

logical data, readings taken at several rates of shear must be plotted.

Viscosity is probably one of the most important emulsion properties since variations are usually quite obvious to the consumer. Viscosity changes often indicate other changes in the product which may reduce its effectiveness. Fluctuations during shelf storage are a major problem for the emulsion chemist.

There are three basic methods for observing viscosity or consistency. The first measures the rate of flow of the product through a capillary or an orifice. The second involves measurement of the rate at which a foreign object will fall or rise through a product. The last measures the torque induced when the product is subject to shear; for example, by placing it between a rotating spindle and a stationary cup. The choice of method depends on the type of product being examined, and on the ease with which the method can be used.

Capillary methods

The capillary method^[2] affords simplicity of operation, as well as equipment that is simply constructed. Its main disadvantage is that it is inadequate for non-Newtonian products.

The Ostwald viscosity pipette is typical of the equipment used. In the Ostwald apparatus, the liquid to be measured flows through a capillary. The time required for the fluid to pass between two levels on the tube is noted, permitting a calculation of viscosity.

Measurement of capillary flow is useful only in the low viscosity region. When more viscous emulsions are encountered it is necessary to measure the rate of flow through a small orifice (which can be considered as a short capillary). In most cases, the viscosity is reported in terms of the time required for passage of a given volume of liquid. One of the widely used orifice type viscometers is the Saybolt instrument, which provides a viscosity reading in Saybolt seconds. Various modifications of the Saybolt equipment have been made, but the main difference in them is the size of the orifice.

Falling object or rising bubble methods

All falling ball, falling plunger, and rising bubble techniques depend on Stokes law. Measurement by means of falling or rising objects is relatively simple, but it is primarily applicable to Newtonian fluids.

The familiar Hoepppler instrument is a falling ball viscometer in which the sphere rolls down an inclined plane through the liquid. The consistency may be reported in viscosity units or it may simply be noted in terms of time.

Another falling object type instrument, useful only for measuring consistency; that is, softness or firmness of the product, is the cone penetrometer, which consists of a weighted cone which can be dropped into the product. The consistency is reported in terms of penetration depth.

The rising bubble technique can be employed for fluid emulsions. The Gardner-Holt viscosity tester employs this principle. With this equipment the rate of bubble rise in a small tube of the unknown liquid is compared with the rates of known liquids contained in the tubes in the test kit. When a match is found,

the viscosity of the unknown can be reported in terms of the viscosity of the known liquid.

Rotational viscometers^[3] are the most versatile type. They can be used for Newtonian and non-Newtonian products over a wide viscosity or consistency range. The only disadvantages of these instruments are that they are sometimes expensive and may require trained operators.

In the Stormer viscometer, a rotational instrument, the emulsion is placed in a cup in which a paddle or cylinder^[4] driven by a descending weight is rotated. The viscosity of the product is reported in terms of time required for a large number of revolutions.

The MacMichael viscometer, another rotational type, consists of a cup which can be rotated around a concentrically suspended bob. The torque exerted on the bob is used as a measure of the viscosity of an emulsion placed in the cup.

The Brookfield viscometer, a more recently developed rotational instrument, measures the torque induced on a rotating spindle by the viscous drag of the product being measured. A large number of spindle-speed combinations are available, permitting measurement on a wide variety of products. The instrument can also be used with a Helipath stand, which moves the spindle through the emulsion during the measurement, bringing unworked product into contact with the spindle. The viscosity of Newtonian fluids is usually reported in centipoises. Consistency of non-Newtonian fluids can be noted as a dial reading if only one spindle and speed are used for a series of determinations. It can also be used to provide complete rheological data on non-Newtonian products.

The Ferranti-Shirley viscometer is a rotational instrument which consists of a flat plate and rotating cone with a very obtuse angle. In use, the apex of the cone just touches the plate surface and the sample to be measured fills the narrow gap between the cone and the plate. The instrument was designed to provide a fairly complete rheological characterization of a small quantity of product in a short time^[5]. Results may be reported in viscosity units for Newtonian fluids and for non-Newtonian products as a rheogram showing cone velocity vs. meter reading or rate of shear vs. shear stress. A recent study^[6] of cosmetic emulsions in which this instrument was used indicates that it should be very useful in evaluating ointments, creams, and lotions.

Esthetic characteristics

In early pharmaceutical practice, little attention was given to formulating products which were pleasant to use. Today, patients are more discriminating, and esthetic characteristics such as good application properties, and pleasing color, odor, flavor and mouthfeel are usually considered essential properties when a product is being formulated.

Spreading qualities and feel on application of an ointment or lotion are generally evaluated by touch and sight. Since the tests are purely qualitative, the results may vary using different subjects or the same subject at different times. The product is usually categorized as follows:

1. soft, medium, or firm consistency
2. short, medium, or long (stringy) fiber

3. uniform, grainy, or lumpy appearance
4. lubricates or drags during application
5. rubs out smoothly or soaps up
6. leaves oily, tacky, dry, or wet film on skin or waxes out
7. causes heat or cold sensation
8. washes off easily, or clings to skin

If the emulsion system is colored, a method of evaluating the intensity of the color must be devised. The choice of method will depend on the type of coloring agent used.

Odor

The evaluation of odor, like flavor, has not advanced to the stage of an exact science. Odor may simply be described in terms of likeness to a well-known odor; for example, fruity, fishy, or tarry.

Perhaps the most nearly scientific classification which exists today is that of Crocker and Henderson^[7,8] who have assigned four fundamental sensations to any odorous substance: fragrant (sweet); acid (sour); burnt; and caprylic (goaty). The Crocker-Henderson Odor Classification Set contains a series of standards representing eight intensity levels for each fundamental sensation. The product being evaluated is compared to the standard for each of the four attributes and assigned a number from each series corresponding to the best match. This makes possible description of the product by a four digit number. In this system, oil of wintergreen would be classified 8453; that is, it is 8 in the fragrance scale, 4 in the acid scale, 5 in the burnt scale, and 3 in the caprylic scale.

Flavor and mouthfeel

Emulsion products for internal consumption are usually rated for flavor and mouthfeel. The testing is highly subjective, and consequently, results may vary with different subjects or with the same subject at different times.

In evaluating flavor, the degree of the following characteristics is noted:

1. sweetness, 2. sourness, 3. bitterness, 4. saltiness, 5. tanginess, 6. acridness, 7. rancidity.

Mouthfeel is usually characterized by choosing from the following descriptions:

1. thin, medium, or heavy consistency; 2. smooth, lumpy, or gritty; 3. oily, greasy, waxy, or sticky; 4. numbing or astringent; 5. cool or warm.

The food industry has, of course, given much thought to the problem of taste testing. One of the papers^[9] which provides a good guide to the latest sensory testing panel techniques includes a discussion of selection of panel members, panel size, panel training, choice of tests, test conditions and procedures, and interpretation of results.

When glass containers are used to package emulsions no unusual effects would be expected. In adapting emulsions for packaging in aerosol cans or polyolefin containers special problems may arise.

The corrosion problems encountered in packaging in aerosol cans are usually more acute when aqueous systems such as emulsions are packaged. Each proposed new product should be tested for corrosion tendency, using enough cans to permit statistical analysis of the data obtained.

Certain common pharmaceutical ingredients are absorbed by polyolefins resulting in permeation or defor-

mation of container walls^[10]. If these materials are present only in the internal phase of a stable emulsion, no effect on the container will be noted. If, however, they are part of the external phase, permeation or deformation will be of the same order noted with unemulsified ingredients. When aerosol or polyolefin packaging is planned, a study should be run to determine the emulsion effect on the container.

Stability

Perhaps the most important emulsion property is stability. Stability is defined for this purpose as lack of change in a product over a period of time. Ideally, an emulsion should retain its type, appearance, viscosity or consistency, application properties, color, odor, and flavor during its shelf life. The test methods previously discussed should be applied at frequent intervals during stability testing so that changes in the emulsion system can be appraised. Therapeutic action should also be checked on aged products. The time of testing must be decided for each emulsion depending on its intended use.

Chemical testing

The chemical stability of the emulsion ingredients must be considered in any stability testing program. For example, there may be a possibility of active ingredient degradation when the product is exposed to sunlight or one of the emulsion components may be subject to oxidation. The test procedure obviously must be chosen at the time of formulation.

Bacteriological and mycological testing

Emulsion products are particularly susceptible to organism growth. They must be prepared under sanitary conditions and it is usually necessary to preserve them. Periodic organism counts should be made on each product throughout its shelf life to permit appraisal of the preservative system. A test method specifically designed for testing the efficacy of preservatives for pharmaceutical products has been published^[11].

Accelerating aging

Since it is sometimes impossible to run extended shelf life storage tests before marketing, emulsions are sometimes subjected to accelerated aging tests. These usually consist of exposing samples to conditions more rigorous than they would ever meet in shipping, storage, display, and use. If the product remains unaffected under the stringent conditions of the testing, it is likely to be stable during actual shelf storage. Interpretation of accelerated test results must be done very carefully because although most accelerated tests have merit, emulsion behavior is often unpredictable and an emulsion which passes through severe conditions without change may show evidence of breakdown under ordinary storage conditions.

One method of accelerated testing is subjecting the product to temperature changes. This is probably the most widely accepted accelerated aging technique. Usually heat stability (up to 50°C.) and freezing-thawing tests are run. Many emulsion chemists regard one to three months' stability (excluding therapeutic agent stability) at 45-50°C. necessary before marketing. Occasionally high and low temperature testing

are combined so that the emulsion is subjected to alternate heating-freezing cycles. About five such cycles or freezing-thawing cycles are sufficient for stability prediction.

Centrifuging an emulsion speeds up the coalescence of the internal phase. Centrifuging may be of some value in stability prediction, but it is usually merely an indication of the state of the emulsion at the time of testing.

Another means of accelerating creaming is dilution of the emulsion and this sometimes serves as a means of estimating stability. An emulsion viewer especially designed for this type testing is available^[12]. Dilution data must be evaluated carefully since the results with the less concentrated emulsion may not reveal the stability behavior pattern of the original product.

Phase separation can be observed microscopically. Periodic size frequency analyses usually give a good indication of the rate of coalescence, and hence the tendency toward instability. Such analyses are time consuming and not usually considered practical for screening emulsifying agents but are extremely useful in evaluating finished products.

All of these accelerated methods have merit in some cases, but none of them can replace actual shelf life testing. Opinions as to the time required for shelf testing before marketing vary somewhat, but many emulsion chemists regard six months at room temperature as the minimum, with one to two years desirable. In evaluating finished products, correlation of results of accelerated testing with results of actual shelf life testing will reveal which accelerated tests are most meaningful.

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Bleaching Compositions

British patent on Improvements in the Stabilization of Hydrogen Peroxide was published in AMERICAN PERFUMER last month. The following article is a good corollary to it.

THE PRESENT INVENTION is concerned with bleaching compositions (for use in the bleaching of hair) which contain aqueous hydrogen peroxide, an ammonium salt, and a thickener, and also relates to powder compositions which can be mixed with water or aqueous hydrogen peroxide to form the compositions to be applied directly to the hair; the compositions contain additional special ingredients which cooperate to give improved results. A disadvantage generally encountered when compositions containing hydrogen peroxide and ammonia are used is that bleaching of the pigment of the hair tends to leave a certain amount of unwanted color; thus dark brown or black hair may tend to finish with a reddish cast, while light brown or dark blonde hair after bleaching may have a yellow cast, and these colors may not be what is desired. By means of the present invention, bleaching compositions can be obtained which have a markedly reduced tendency to give these color effects. Moreover, by means of the invention, bleaching compositions can be obtained which bleach hair much more rapidly than aqueous hydrogen peroxide and ammonia and give a smooth and continuous bleaching action.

A powder composition according to the invention is one which on admixture with water or aqueous hydrogen peroxide yields a bleaching composition suitable for application to the hair, said powder composition comprising a metallic peroxide as hereinafter defined, a water-soluble persulphate, ammonium bicarbonate and a water-insoluble thickener. The bleaching compositions of the invention are ones comprising such a powder in admixture with water or aqueous hydrogen peroxide.

The metallic peroxides of the compositions of the

invention are those which on addition to water form an alkali and generate hydrogen peroxide, for example an alkali metal or alkaline earth metal peroxide. While sodium peroxide is particularly valuable, calcium, barium or magnesium peroxide can be employed, especially together with sodium peroxide. The metallic peroxide can be protected from decomposition by extraneous moisture before the composition is used by including a suitable desiccant, for example anhydrous sodium sulphate.

Preferably the persulphate is ammonium persulphate, but other water-soluble persulphates, for instance, alkali metal persulphates, can also be used. The ammonium bicarbonate provides ammonia for the bleaching process, this ammonia being made available when the metallic peroxide and ammonium bicarbonate are mixed with aqueous hydrogen peroxide in the preparation of the bleaching composition. When ammonium persulphate is used as the persulphate, this also provides ammonia for the bleaching process. It has been found that the ammonium bicarbonate activates the bleaching action of the persulphate so that it proceeds at relatively low temperatures. It is preferable to employ bisulphate also, as it has been found that its presence reduces the tendency of ammonium bicarbonate in a powder composition to give off ammonia and this improves the keeping qualities of the powder.

Suitable as water-insoluble thickeners for providing a bleaching composition of the consistency desired are such water-insoluble salts as calcium carbonate, magnesium carbonate and Plaster of Paris (calcium sulphate hemihydrate); other inert filler materials such as talc, kaolin and bentonite can be employed. Light magnesium carbonate (*magnesia alba levis*) is particularly suitable. The insolubility of the thickener only needs to be such that an adequate amount of it

remains in the solid form in the bleaching composition.

Some bleaching compositions in use tend to dry out before the bleaching process has proceeded to the extent desired and this brings bleaching to a halt: it has been found that in such instances the drying out can be delayed or reduced by the incorporation in the powder compositions of a solid humectant, preferably a non-deliquescent organic polyhydroxy compound, for example a sugar. Sucrose and glucose give satisfactory results, and lactose can also be used.

The activity of the bleaching compositions of the invention is influenced to a considerable extent by their pH; it is preferable to employ a bleaching composition having a pH within the range of 8.5 to 9, and especially 8.8 to 9.0. The ingredients are accordingly in practice so chosen that the bleaching compositions have a pH within these ranges, and the powder compositions from which the bleaching compositions are obtained give such a pH when they are mixed with 20 volume hydrogen peroxide to form the bleaching compositions. The pH can conveniently be held at a suitable level by the incorporation of a buffer, for instance a salt of a strong alkali and a weak acid. It can be arranged for the ammonium bicarbonate and ammonium bisulphate used together to provide an adequate buffering action; other buffers which can be used are potassium hydrogen phthalate, tartaric acid, ammonium hydrogen tartrate and acid ammonium salts of polybasic inorganic and organic acids in general, for example diammonium phosphate.

Preparing powder compositions

The powder compositions can be prepared by mixing the ingredients together in any suitable manner. Bleaching compositions of the invention can be prepared by mixing with aqueous hydrogen peroxide an amount of a powder composition such that an adequate working consistency is obtained; the bleaching compositions are, of course, used immediately after preparation as they are unstable.

In practice the powder compositions of the invention contain 2-30%, and preferably 4-15% by weight of metallic peroxide; 5-25% of persulphate; 5-40% of ammonium bicarbonate and 10-85%, and preferably 25-50%, of thickener. When light magnesium carbonate is used as the only thickener, 15-55% of it by weight of the powder composition is in practice employed. When anhydrous sodium sulphate is used as a desiccant, from 5 to 30% by weight of the powder composition is usually convenient. A humectant, for instance sucrose or glucose, can conveniently be used in quantities of from 2 to 10% by weight of the powder composition. When ammonium persulphate is employed as persulphate in the compositions of the invention, it is preferable to use at least an equal weight of ammonium bicarbonate. When ammonium bisulphate is present, it is preferable to employ from 60 to 100% of it by weight of the ammonium bicarbonate used.

The invention is illustrated by the following examples. The quantities in the powder compositions are in parts by weight. In each instance the magnesium carbonate used was the basic carbonate *magnesia alba levius*.

Example 1

A powder composition of the invention was prepared using the following materials.

Sodium peroxide	10
Ammonium persulphate	10
Ammonium bicarbonate	12
Magnesium carbonate	43
Tartaric acid	25

The ammonium persulphate, ammonium bicarbonate, magnesium carbonate and tartaric acid were ground together; the sodium peroxide was ground separately with a small portion of the mixture and the product was then mixed with the main bulk of material and passed through a sieve of 80 mesh to the inch. Portions (10 g.) of the composition were then mixed with 15, 20, and 25 cc. portions of 20 volume hydrogen peroxide respectively, giving very thick, medium thick and thin creams of pH 8.8, 8.8 to 9.1 and 8.8 to 9.1 respectively (the levels of sodium peroxide being 6.7%, 5% and 4%). On preparation of the creams carbon dioxide was evolved and a temporary thickening was noticed: when evolution of carbon dioxide was complete a cream of smooth texture was obtained. The compositions had at first no smell of ammonia, and eventually developed only a slight smell.

Example 2

A further powder composition was prepared using the following ingredients.

Sodium peroxide	10
Ammonium persulphate	15
(containing 3.5 additional calcium phosphate)	
Ammonium bicarbonate	20
Ammonium bisulphate	20
Magnesium carbonate	35

Portions (10 g.) of the powder composition were mixed with 15, 20 and 25 cc. portions of 20 volume hydrogen peroxide, giving very thick, medium thick and thin creams respectively, all of pH 8.8 (the levels of sodium peroxide being 6.7%, 5% and 4% respectively). When tested using the procedure of Example 1, the bleaching compositions gave only a very slight smell of ammonia and an excellent bleach, the black hair being bleached to a very pale yellow.

Example 3

Sodium peroxide	10
Ammonium persulphate	15
(containing 3.5 additional calcium phosphate)	
Ammonium bicarbonate	20
Ammonium bisulphate	20
Magnesium carbonate	30
Sucrose	5

A powder composition of the invention was prepared using the above ingredients. Portions (10 g.) of the composition were mixed with 15, 20, and 25 cc. portions of 20 volume hydrogen peroxide, giving medium thick, thin and very thin bleaching compositions having a pH of 8.5 in each instance.

Example 9

Sodium percarbonate	15
Ammonium bicarbonate	30
Ammonium bisulphate	5
Ammonium persulphate	15
(containing 3.5% additional calcium phosphate)	
Magnesium carbonate	35

How to Meet the Impending Threat of Tighter Money

BY LEROY L. KOHN, President
Mercantile Discount Corporation
Chicago, Illinois

DESPITE THE BUSINESS BOOM, one out of every seven businesses was either liquidated or sold in 1960—a fact which reflects the difficult financial problems facing smaller businesses.

In the perfume and cosmetic manufacturing industry with working capital turning over about five times a year, any tighter money will squeeze many companies. If they are to survive and grow, they must raise more cash—more working capital in addition to more fixed capital investment.

Where can they get the necessary financing for expansion? Fundamentally, there are three ways to finance growth: (1) out of retained earnings, (2) selling new stock in the company, or (3) borrowing from SBIC's or other financial institutions.

1. *Out of Retained Earnings.* This is tougher on the smaller and medium-sized growing company than on the bigger ones. In the early years of growth, sales often run ahead of investment in plant and product development. With a 52% corporate tax on earnings over \$25,000, smaller businesses cannot keep tax-free income ahead of expansion needs.

2. *Selling New Stock in the Company.* Stock can be sold to the public or direct to individuals holding venture capital.

In flotation of securities, there are a number of fixed underwriting costs applying to both large and small issues. Also, it takes more "sell" to market the securities of an unknown than of a larger corporation.

Two Securities and Exchange Commission studies summarize the difficulties of marketing issues of *little-known* corporations:

A. Only 23% of the registered securities were sold within a year after the effective registration date.

B. One-third of the 584 companies surveyed did not sell any of their securities. Of the companies reporting sales, new ventures sold a mere 27% compared with 44% sales by the established concerns.

C. About 71% of the reported sales were made within three months after registration. Sales merely trickled thereafter.

D. Flotation costs for issues under \$1 million are almost double the flotation costs of issues \$1 million to \$5 million.

3. *Borrowing on Notes or Bonds.* Banks are the first source. They usually offer short-term credits since the ratios of smaller and medium sized companies do not permit too much long-term financing for expansion.

When banks make loans to commercial borrowers, they look pretty hard at the borrower's net worth and restrict their loans to some percentage of the net worth. For example, to borrow \$1, a manufactur-

er must have \$4 in net worth. This is the general banking rule.

Then also, if the bank loan is unsecured, there is a matter of a compensating balance—i.e., the borrower must leave on deposit from 15% to 20% of the loan. This too, tends to cut down the cash available to the borrower.

It is virtually impossible to find a banker who has not sat across the desk from an honest, striving and worthy corporate head asking for long-term expansion funds—and been forced to turn down the request. The corporate owners are told that the need is often for more *equity* rather than more debt. And that is where many corporate owners find themselves up against a stone wall. The current development of Small Business Investment Corporation financing and of syndicate capital loans is therefore of interest to corporations.

Debt financing

Normally, SBIC's lend on the basis of debentures, which is debt financing. However, since this is long-term money, it serves just like equity. Typically, the SBIC's demand a "sweetener." Either the debentures are convertible to common stock or there are warrants or stock purchase privileges attached to the debentures. This means a share of ownership and a voice in management.

There are now some 300 SBIC's established throughout the country, most of them brand new. They are avidly looking for good investments. It is anticipated that about \$50 million in SBIC loans will be made in the next 12 months.

Such investors offer long-term cash, which is what most smaller and medium-sized corporations find the greatest difficulty in raising. SBIC loans run from \$10,000 to \$5,000,000 in amount, and from five- to 20-year terms. However, the borrower must give up a share of ownership and a voice in management, and usually must accept controls and restrictions in regard to salaries, net working capital, expenditures, autos charged to the company, etc.

Normally, what do the SBIC's look for in borrowing corporations?

1. To be eligible for a typical SBIC loan of (say) \$250,000, the borrowing corporation must have a net worth of at least \$500,000.

2. The borrower must be managed by a competent team of experienced men in their field, and not just one man.

3. Sales volume and earnings for the last five years must have been increasing—good indications of the company's growth potential.

4. The borrower must promise not to pledge any

assets to secure bank loans. Unsecured bank loans are all right.

5. There must be a realistic possibility of a successful public financing in about five to 10 years in order to "unlock" the SBIC investment which will be locked in for the period.

By-pass flotation costs

SBIC financing can be very gratifying to borrowers. With such additional long-term capital, the company will normally merit a larger line of short-term credit at the bank, will be able to finance expansion, and bypass SEC registration and security flotation costs.

However, as already indicated, SBIC financing normally involves giving up a share of ownership and a voice in management. Whether this price is too high to pay is something which every corporation has to decide for itself.

For companies interested in applying for an SBIC loan, a letter to University Research Corporation, 121 West Adams Street, Chicago 3, Illinois, will channel the information to an SBIC in the locality of the applicant. Accompanying the letter ought to be a company history, purpose of the financing, audited financial statements, and comment on company long-range outlook.

Institutional loans

An alternative to an SBIC loan is a capital loan from an institutional syndicate. Institutional syndicates make capital loans, usually on a five-year basis, usually secured by whatever collateral is normally required in business transactions—but they ask for no share of ownership or voice in management. In the last few years, these long-term capital loans have expanded to about \$300,000,000 annually and within the next 10 years should expand to about \$1 billion annually.

These syndicates of lending institutions (usually pension funds, insurance companies, trust funds, commercial finance companies) seek only growing companies which have outgrown their working capital. Such lenders are not primarily interested in the value of the borrowers' fixed assets or net worth. They are more interested in earning power and five-year growth potential. Normally, these syndicate loans range from \$75,000 minimum to \$2,500,000 maximum.

Many manufacturers could expand their sales volume if they could get sufficient seasonal lines of credit to carry peak inventories, pay peak labor, and finance peak receivables. If additional cash beyond that were available, some new equipment would also do wonders for the company. The lending syndicates offer to help manufacturers meet these needs by providing long-term five-year loans.

\$390,000 Example

How one perfume and toilet water manufacturer used its \$390,000 long-term loan may be gauged from the balance sheet elsewhere on this page. It will be noticed that the company improved its cash position by \$50,000; working capital improved by \$310,000; and its current ratio became 2.48-to-1 from 1.04-to-1. This company was able to clean up short-term bank

indebtedness, liquidate more than half the past-due payables, and substantially improve its credit rating—without taking in partners or selling stock.

Since the company's major difficulty was the fact that it didn't have enough working capital to keep up with its growing sales, a large share of the long-term loan was funneled into working capital uses. Actually, manufacturers have used such funds for other purposes also: to accumulate inventories in advance of seasonal demand, to purchase new or specialized machinery, to buy out minority stockholders or partners, to effect a merger, etc. As long as the funds are used for growth, the loan is favorably regarded.

What steps are involved in applying for such capital funds? One such syndicate of 27 financial institutions, which channels its applications through one office asks that the following items be sent to LeRoy L. Kohn, president of Mercantile Discount Corporation at 7 South Dearborn Street, Chicago 3, Illinois:

- A. an estimate of the funds required and for what purpose—e.g., for working capital, for inventory expansion, for purchase of new equipment, etc. The minimum capital loan is \$75,000; the maximum of \$2,500,000.
- B. a short history of the company, and
- C. an audited balance sheet and profit-and-loss statement.

Most syndicate long-term capital loans are designed only for growing companies whose working capital cannot keep up with the demands of expanding production and sales. It has happened that after two or three years of this program, a manufacturer has turned to public financing and canceled out the capital loan financing. This is to be expected. The program is precisely designed to act as a bridge from private financing to public financing whenever the opportunity presents itself to the borrower.

	BEFORE	AFTER
Cash	\$ 0	\$ 50,000
Accounts receivable	300,000	300,000
Inventory	225,000	225,000
Total Current Assets	\$525,000	\$575,000
Fixed assets (net)	361,000	361,000
Other assets	6,000	6,000
Total Assets	\$892,000	\$942,000
LIABILITIES		
Bank notes payable	190,000	0
Accounts payable	260,000	110,000
Accrued taxes	29,000	29,000
Accrued payroll	10,000	10,000
Accrued insurance	3,000	3,000
Secured loan current	0	80,000
Total Current Liabilities	\$492,000	\$232,000
Long term debt:		
Capital loan	0	310,000
Total Liabilities	\$492,000	\$542,000
CAPITAL		
Total capital	400,000	400,000
Total Liabilities & Capital	\$892,000	\$942,000
WORKING CAPITAL		
Current assets	525,000	575,000
Current liabilities	492,000	232,000
Working Capital	33,000	343,000
CURRENT RATIO:	1.04-to-1	2.48-to-1

European Contribution to Aerosol Technology

BY DR. HANS KUBLER

IN AN AEROSOL TRADE JOURNAL we read an article entitled, "A lesson from Europe" ^[1] and we believe we hear in it the voice of Dr. Clark, a native American who has settled in Europe. He has given some suggestions to the experts of the aerosol industry on the continent. The author of this article says that it is high time to attribute more value to the European research and not believe that U. S. aerosol technology is 5-6 years ahead. Finally, he says that it is right if we learn from one another, and he recommends visiting the European aerosol meetings.

Now what contributions have the European aerosol experts rendered?

We will begin with the cans. The Europeans may claim the merit to have striven hard in the development of the aluminum can. At first, they made the two-part unit and afterwards the monobloc can. In Europe this type of can has reached great importance along with blackplate and tinplate cans. In Italy especially, scarcely any other cans are in use. Among others the following companies are producers of aluminum cans: Bombrini Parodi-Delfino and Broggi-Isaac in Italy, Printal oy in Finland, Boxal in Switzerland, Universal Metal Products Ltd. in UK, Krieg and Zivy and Poultry in France, Vereinigte Deutsche Metallwerke and Richter in West Germany, and Metallwarenfabrik Lauterach in Austria.

The "Piz-Buin" can (Suntan), produced by the last mentioned company was awarded the national prize of Austria in 1960 for representative packages ^[2]. Remarkable is the "Safca" aluminum can with the special neck of 22 mm, containing a cupless "Safca" valve. This was distinguished in a C.S.M.A. competition for aerosol cans (contained insecticide, "Killer") as the first non-American can beside the spot remover "Spray-Clean" of Durazone Ltd. from UK ^[3].

President Pollet and Chief Engineer Remane of

Safca, Serezin du Rhone, France, are among the first researchers in Europe, who have been active since 1949 in the aerosol field. They developed an astonishing activity and studied chiefly three problems, viz. the production of the Safca valves, the design of a cold-filling unit and the safe use of the propellant Propane/Butane, namely in non-aqueous aerosol products, such as insecticides and air fresheners. Best experiences have been made with the propellant. Safca valve has been under development for a long period and is currently improved. It represents a completely new type: its constituents are free from elastomers and metals and it can be used very well in a pressure-filling operation. Safca has a big filling department with several automatic lines, and subsidiaries in many countries.

Pioneers in aerosol technique

In addition to Safca other European companies have been excellent pioneers and have devoted their activities for a decade to the aerosol technique. These are Cooper, McDougall and Robertson Ltd. in UK; Aerosol Service in Switzerland; and Schmalbach and Spruhtchnik in West Germany. While Schmalbach, apart from its filling department, represents one of the biggest aerosol makers on the continent, Spruhtchnik is occupied with the composition of formulations for nearly all aerosol preparations and offers these in a wide variety as finished aerosol packages to its customers. Mr. Aleff, managing director of Spruhtchnik, was the first European who created the 18 oz. can, whereas in U. S. the biggest aerosol can contains only 16 oz. In France even the production of 1 liter can (33 oz.) is permitted.

In 1961, Europe will have a record production of more than 200 million aerosol cans. This result can be credited to the intense investigations of these companies and to a number of others, who entered the field later.

Early patents

Take a look at aerosol history. The first process, patented in 1921, for the production of a "Pressurized Package" with a compressed propellant originates from the American Dr. Lewis Kempton Mobley ^[4]. The true "Aerosol Package", on the other hand, was described for the first time in two German patents by the Norwegian Erik Rotheim in 1927 and 1928 ^[5]. These early patents contained references to the numerous potentials of the aerosol packaging and protected a "process for spraying or distribution of fluids or semifluid or solid substances (and its solutions) of all kinds, such as oils, fats, fluid soaps, resins, paraffins, waxes, dyes, paints, coatings, varnishes, lacquers, caoutchouc, rubber, adhesives, disinfectants, impregnating agents, preservatives, detergents, fertilizers, fire-extinguishers, cosmetic preparations, organic and inorganic fluids, etc." Hence Europe may claim to have given birth to the aerosol idea, but the U. S. on the other hand evaluated its economic importance.

In considering the aerosol valves we have to state, that apart from Safca and some other lesser developments, the manufacture of U. S. valves is worth particular attention. Here, especially we have to call attention to the activities of the licensees of Precision with

the coordinating holding companies Precision International Valve Company and Ste. française de Recherches Aerosol, who are making Aerosol Research valves. Another very important development of Schmalbach cannot go unmentioned. This company inserts the inflexible Precision valve in the dome of the can. This design eliminates a possibility of leakage, viz. at the clinching of a disk valve on top of the 1" can.

Now let us consider the propellents. The chlorinated fluorohydrocarbons are leading in Europe, too. Additional potential propellents, such as Methyl chloride, Methyl nitrite, and Dimethyl ether are listed in the above-mentioned patent^[5]. Furthermore, isobutane vinyl chloride are cited too. In Europe there are no producers of isobutane, but a mixture of propane and butane (25-75% by weight) fractions from natural gas has found broad application. As mentioned before, it is predominant in non-aqueous formulations or as a blend with chlorinated fluorohydrocarbons. The mentioned propellant, vinyl chloride, is used especially in Germany and Sweden.

In Europe, only a few contributions on chlorinated fluorohydrocarbons and propane-butane have been published. Some investigators of Farbwerke Hoechst, a producer of chlorinated fluorohydrocarbons, have reported on "The Spraying pattern of Aerosols"^[6] and on "The physiological properties of these propellents."^[7]

Skin compatibility of propellents

In France, papers on the skin compatibility of these propellents have been published^[8]. These papers confirm the good skin and inhalation compatibilities of the chlorinated fluorohydrocarbons in the concentrations we can expect with aerosols.

The Federation of European Aerosol Associations (FEA), founded in 1958, appointed a chemical-technical executive committee (C.T.A.) to handle aerosol problems of the unions of the individual countries. Thereby the Frenchmen have adopted the handling of the physiological properties of the chlorinated fluorohydrocarbons. The investigations are not yet finished and after completion will be published in the bulletin of the FEA.

Mention of propane-butane was made in a paper^[9] with the reference that cans filled with this gas do not represent a particular hazard.

Vinyl chloride

I have described vinyl chloride in several publications and confirmed its adaption as propellant^{[10], [11], [12], [13], [14], [15], [16]}.

This gas, distinguished by its good dissolving capacities—due to the boiling temperature of -14°C—is well applicable in practice for aerosol propellant. Used alone vinyl chloride exerts a pressure which is required for the spraying. The expansion of vinyl chloride is, on evaporation, the strongest among all propellents. 1 ccm of fluid gives 330 ccm gas which results in a particular fine spray.

We have learned to reliably prevent an eventual polymerization of vinyl chloride in the aerosol package and we know the proper elastomers which are consistent with this stronger swelling propellant. The

determined hydrolysis values are particularly remarkable. Recent investigations, not yet published, had the following interesting result:

The propellant indicates no hydrolysis when metal is present, which in the presence of water is required as an activator. Assuming the hydrolysis value of vinyl chloride (ca-0.7 g HCl per liter and per year) is 1, the corresponding figures are:

for trichlorofluoromethane	(11)	700
for dichlorodifluoromethane	(12)	45
for dichlorotetrafluoroethane, sym.	(114)	0

Testing

The tests have been performed in such a manner that at times homogenous mixtures of water + alcohol + propellant have been stored at a temperature of 50°C. Probably the values are next nearest the practice and indicate opposite to other data no hydrolysis for dichlorotetrafluoroethane, sym.^[11] Numerous chemico-technical and cosmetic aerosol preparations indicated with the use of the propellant 11 + 12 and vinylchloride the equally good physiological properties^[17]. Systematic, but not yet published, tests on mice, rats and guinea-pigs, using atmospheric air containing propellant (11 + 12 and vinyl chloride) up to 5.0% vol. indicated no morphological injuries to the animals. In effect for two hours during 100 days of the load concentration of 5.0% vol. indicated—with vinyl chloride—a stronger vegetative influence which immediately after the end of the test faded away and caused no injuries of any sort.

In the U. S. a new book, edited by Mr. Shephard on "Aerosols: Science and Technology" we read on page 374, Chapter 11, the following: "Disadvantages pertaining to the use of vinyl chloride are that small quantities in air may easily cause narcosis." This information does not correspond to the physiological tests which have been induced by the author of this article. The narcotic concentration is of the order of ca. 12% vol.

Many specialties

An exact discussion of the active ingredients and solvents used in Europe is beyond the scope of this consideration. Many substances used in the U. S. are applied on the continent too for aerosol formulations. Additionally, there are in Europe many developed specialties for suntan, fly repellents, products with insecticidal, fungicide and bactericide properties. Especially in a high degree chlorinated hydrocarbons, and particularly methylene chloride, are used. I have thoroughly described the properties and the physiological compatibility of these substances^{[12], [15], [16]}.

Worth mentioning is a pyrethrum synergist, made by the Badische Anilin & Sodaefabrik in Germany, with the trademark "S 421". Detailed tests and the practice have proved the good properties of this nearly odorless substance.^[18] The chemical formula is: 2,3,3,2',3',3',3'-Octachlorodipropylether. The optimum effectiveness is obtainable with a relation Pyrethrum to S 421 = 1 to 8.

The present considerations would be incomplete, unless the important successful aerosol technical investigations of the C. T. A. of the single country groups is mentioned. The C. T. A. of the C. F. A. (Comité

francais des Aerosols) is occupied, in addition to the already mentioned physiological task, with the standardization of the aerosol glass bottles. These studies refer to the neck diameter of the bottles with 18 and 20 cm and indicate the dimensions for the whole design of the neck^[19].

The C. T. A. of the I. A. A. (International Aerosol Association) to which Switzerland belongs (and all countries without their own aerosol associations) is concerned with the formulation of directions for universal use, which shall guarantee an absolute safe handling of aerosol packages.

Standardization

The C. T. A. of the I. G. A. (Interessengemeinschaft Aerosole, Germany) is engaged in the standardization of metal cans and volumes, the standardization of the valve cups and the manufacture of measuring instruments for the determination of the standards. Thereby a great deal of value is placed on the fixing and conformity of the dimensions of the can orifices and valves. A circular cross section is considered an ideal form of the bulge ring. Furthermore, I.G.A. is occupied with the specifications for the manufacture, filling and the shipment of pressurized spray cans^[20].

Meantime, the "British Aerosol Manufacturer's Association" (BAMA) has been founded in England, and will join the Federation of European Aerosol Associations as an independent association alongside France, Spain, Finland, Germany and Switzerland. Hitherto, the English experts have cooperated with the C. T. A. of the I. A. A.

At this point we will not neglect to point to a particular interesting and extensive paper of Dr. Meuresch, Precision Valve International Ltd., Zurich. In a fundamental investigation, the results of measurement for the dimensions of the can bulge rim, for the interior and exterior diameter of the valves, the sheet thickness, the cup height of various producers have been noted. Very significant differences have been stated. The author describes the process of clinching and the form of the clinch tools. The factors, which interact to the clinching, are stated as follows: 1. Dimensions of clincher can valve cup; 2. Clinch wideness, clinch height; 3. cup material; 4. injected or inserted gasket; 5. machine pressure during the clinch operation; 6. outline of the clinch tongs.

No clinch dimension

Dr. Meuresch has stated there isn't any suitable clinch dimension and recommends the old approved operation: "Cinch with sensation and examine cans!"

Meanwhile the C. T. A. of the F. E. A. has, based on the investigations of the C. T. A. of the I. G. A., discussed thoroughly in two sessions all the problems. The joint cooperation resulted in clear proposals for all dimensions. These were published in the F. E. A. Aerosol Bulletin, August 1961. Sizes of the cans and valves have to harmonize and a standard value of 27.2 mm - 0.1 mm + 0.2 mm has been specified for the width of the clinch.

In this way, filling departments have a close guarantee that tight cans only leave the lines, an important factor especially for the safe shipping of aerosol packages.

The European aerosol producers have been chiefly occupied with the pressure filling operations. The reason for this may be that the expenses for the equipment are smaller than those for the cold filling line, although the efficiency might be slower. A paper announces a coming revolution in aerosols. For Europe, the pressure filling process is no longer revolutionary because today the major portion of the cans are filled by pressure. Ready-made pressure filling equipment has been available for many years from Aeratom (Dr. Honisch-Rapperswil, Switzerland) and Druk-Pak (Dr. Clark and Waldherr, Mannheim, Germany).

The question of air displacement has been solved too. Aeratom has made and described^[23] apart from the filling operation, the so-called "third system." After filling the active ingredients, a production machine combines the following operations: evacuation, filling of the liquified gas and clinching. It is a combined cold-pressure operation.

Through-valve filling

An aerosol company in UK has designed a fourth system, named "Pressfill". In this system, the valve is first attached after which the active ingredients and the gas are filled through the valve. For this process, of course, the problem of air displacement is not yet solved and the efficiency is, on hearsay, not entirely satisfactory.

All European cold fill units are private developments of the filling departments. Only recently have ready-made designs become available from Safca.

Quality control

The problem of the product and quality control is studied in Europe with great attention. This problem has been handled again and again at meetings and in discussions^[24]. I, myself, plead for the production of cosmetic preparations (for medicaments is this a matter of course) but not before a physiological test^[17] is performed.

Captive filling

The question of captive filling (contract filling) is raised very often too^[25]. Europeans are greater secret mongers than the Americans, hence the trend toward captive filling is great. The variety of aerosol product lines developed in Europe is not as ample as those in the U. S., but there is a lot of individual development accentuating preparations of other kinds. The Old World has a mentality different from the New World, which is reflected in the structure of the aerosol products. Aerosol foams and foods are of no import in Europe. The "classical" aerosol packages: insecticides, air-fresheners, hair lacquers have now, as before, the biggest portion of production, followed by other aerosols, especially suntans.

Finally, there are other European aerosol contributions worth mentioning. The book "Pressurized Packaging" by the Englishmen Herzka and Pickthall, edited 1958, is especially remarkable. It represents the first "Aerosol Textbook" and is a mediator of the whole fundamental knowledge for all who intend to deal with aerosol packaging. It is always difficult for another author to publish a similar book when "the model" is present. This is true for the U. S. book "Aerosols:



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Science and Technology." This book raises some questions already mentioned herein, and about which a magazine has reported in detail^[26]. Development and research will continue, new findings of universal validity will be gained which will give rise for other books to be written and the old ones revised.

A development observed in Germany is worth mentioning and imitation. The Fraunhofer Society, for promotion of applied research, has a technical committee for Aerosol questions. This committee is occupied with aerosol therapy and with all problems of aerosols; that is, the fine distribution of air-borne fluids or solid media.

Medical men, physicists and other scientists have been interested in all aerosol developments. Doctors particularly have been watching developments because of the good therapeutic success achieved by pressurized aerosols for inhalation. Therefore, close relations with the Society of German Cosmetic Chemists and the Fraunhofer Society will be established. The discussions between medical men, aerosol technicians, cosmetic chemists will provide interesting suggestions worthy of discussion not only with European, but also with their American colleagues.

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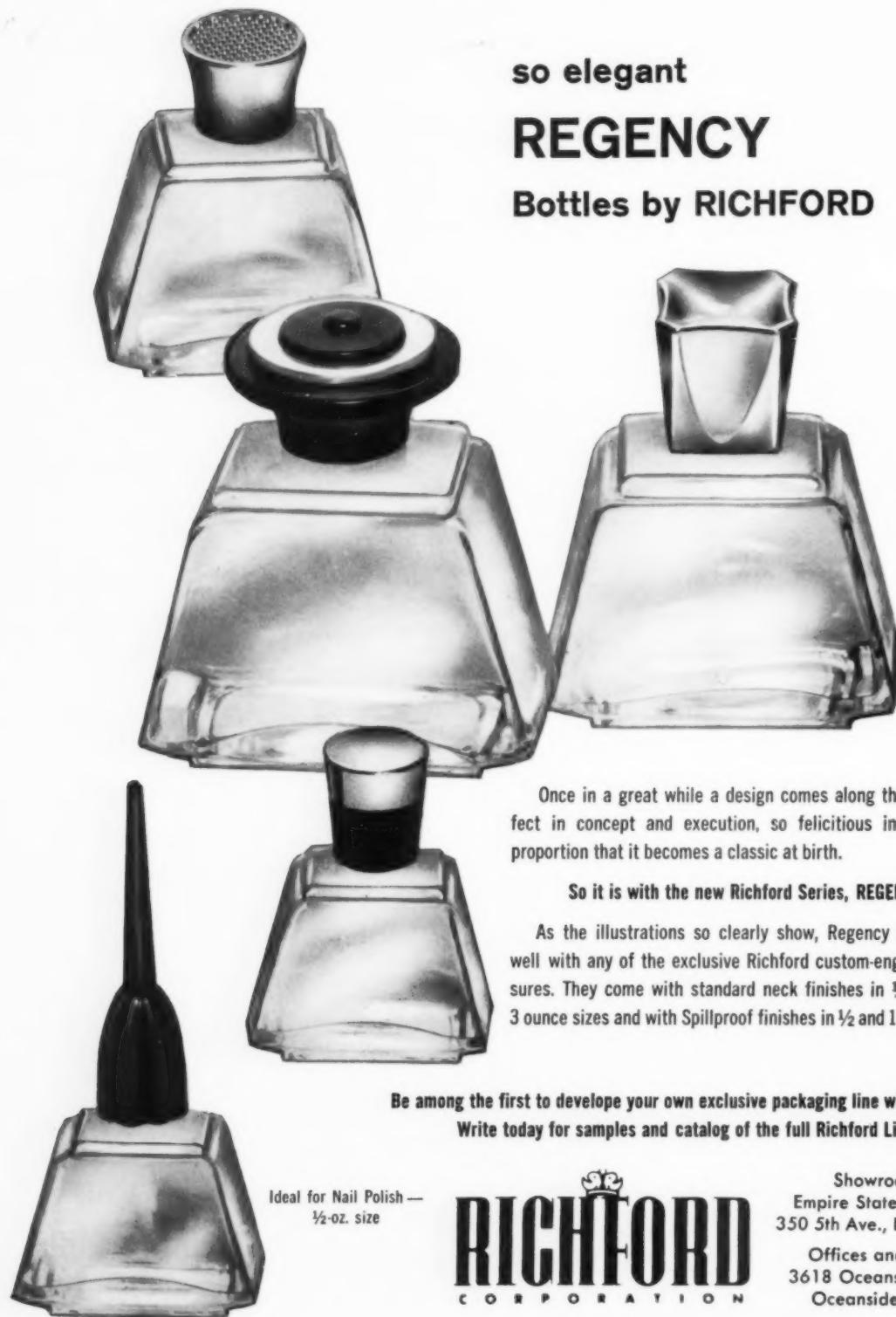


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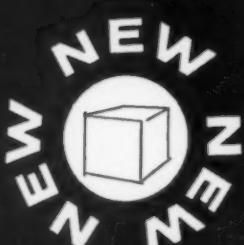
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PACKAGING & PROMOTION

Below: Color Plus was merchandised in a special gift package. Contains a tray of 5 popular shades in a striking pink and red striped carton.



Capri Cosmetics, Inc., Memphis is marketing refillable purse-size glass pressure bottle for dispensing Capri Hair Mist. The Owens-Illinois bottle is sheathed with blue plastic and topped with white plastic. Newman-Green valves complete the package.

Marcel Rochas has introduced a perfume atomizer that holds 3½ drams of "Femme" or "Madame Rochas". The Risdon aerosol dispenser is brass imprinted with the new MR tapestry pattern, or lace-like pattern for "Femme." Metering valve and spray dome actuator is also produced by Risdon. Inner cartridge of stainless steel holds the fragrance and is replaceable.



Milk-white goblet is used by Max Factor for marketing Cup of Youth in special post-Christmas selling effort. The fluffy cream contains a blend of estrogens, moisturizers and skin smoothing emollients. Carton will be imprinted with the limited-time sale price.

Free pump-top goes along with the six oz. size of Noxzema Skin Lotion in special limited-time sale. Product is being promoted on four top tv shows as well as in leading women's magazines and Sunday supplements.



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yields maximum shelf life
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Let Sun-Lac's aerosol packaging service make your aromatic products compatible with modern packaging, and see the results. For information on how we are serving well-known perfume manufacturers by solubilizing scent oils for aerosol dollars—through new product development and quality-controlled production—write, wire, or phone:

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Dr. Henry J. Wing, Chesebrough-Pond's Inc.; Edward P. Morris, Firmenich, Inc.; Dr. Lloyd W. Hazleton, Hazleton Laboratories, Inc.



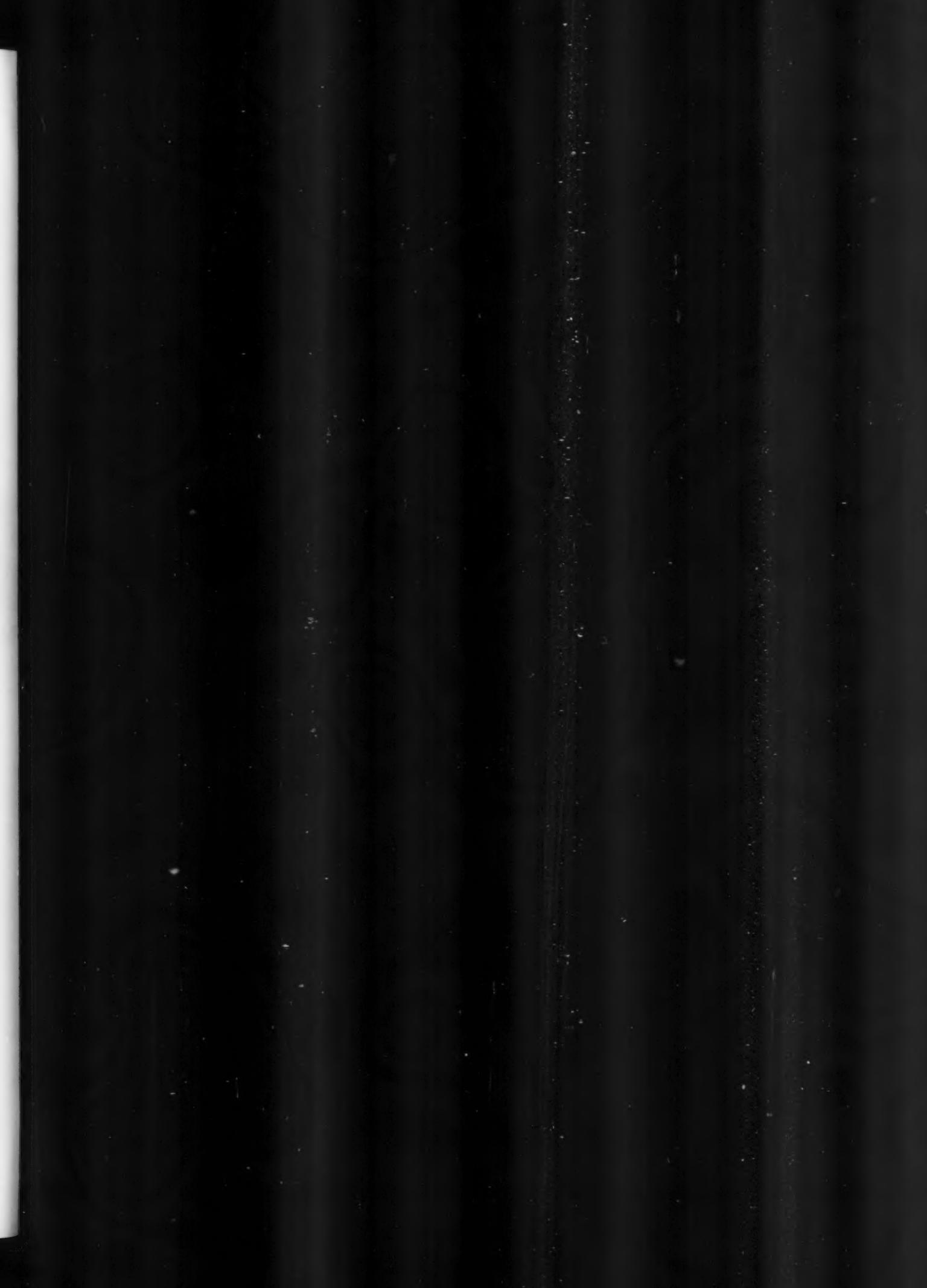
Thomas Biallo, Camilli, Albert & Laloue, Inc.; Dr. Stephen A. Karas, Jacqueline Cochran, Inc.; Gabriel Raphael, Polak's Frutal Works Inc.



Dr. Julius Safrin, Albert Verley & Co.; Phyllis J. Carter, Atlas Chemical Industries, Inc.; J. H. Stephenson, Albert Verley & Co.



Warren R. Godfrey, Fritzsche Brothers, Inc.; R. T. Linquist, Andrew Jergens Co.; Dr. J. S. Jelinek, Polak's Frutal Works Inc.; and Robert E. Horsey, Givaudan-Delawanna, Inc.



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Joseph Bardusch, General Chemical Division, Allied Chemical Co.; Richard T. Lewkowicz, Felton Chemical Co., Inc.; William Rolston, General Chemical Division, Allied Chemical Co.; Ted Meritt, Chas. Pfizer & Co., Inc.



Robert A. Kramer, Evans Chemetics, Inc.; Kenneth W. Hartley, newly appointed president of Dodge & Olcott, Inc.; George Kolar, Kolar Laboratories, Inc.; and J. Brace and E. Leitman, Evans Chemetics, Inc.



Larry Duffee, Charles of the Ritz, Inc.; James A. Cherry and J. P. Hardiman, Kessler Chemical Co., Inc.



Ralph Messina, Colgate-Palmolive Co.; Larry Driscoll, Whittaker, Clark & Daniels, Inc.; Herbert Linne, Paris Cosmetics, Inc.



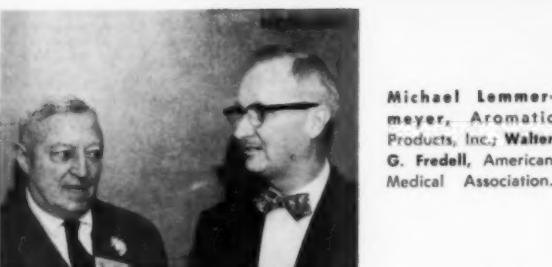
**Dr. Henry A. Molteni,
Drew Chemical Corp.;
Michael R. Gutowski,
Lanetaex Products,
Inc.**



**W. H. Walker, Fuller
Products Co.; J. P.
Leroux, Rhodia, Inc.**



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News of the Societies

Drs. Plechner and Kapp address Los Angeles meeting

The Los Angeles Chapter met October 16. Dr. Sophie L. Plechner, national president, and Dr. Ira Kapp, Research Director, Felton Chemicals Company were guest speakers. Dr. Plechner gave an interesting report on the activities of the national organization. Dr. Kapp spoke on "Incorporation of Desirable Esthetic Characteristics into Cosmetics."

He said the modern perfume is frequently a clash of opposite odors, and as such are different from the classical perfumes which are well rounded multi-blends.

According to Dr. Kapp, analysis of perfumes by the skilled perfumer using smelling blotters is now largely amplified by the use of infra red spectrophotometry and gas chromatography. In evaluating the absorption peaks, the experts learn to relate these to adjoining peaks.

Dr. Kapp compared the creation of new perfumes with the painting of a picture. The artist works on certain areas of his subject until it represents his exact impression. Then he moves on to other areas, until the whole is completed.

He also spoke of the technical problems encountered; color stability, skin sensitivity, reactions with containers,

especially aerosols. In the latter, he said that emulsions give the most problems. The use of cosolvents, such as dipropylene glycol, is helpful.

The evening was a smashing success and enjoyed by all. The evening was highlighted by gifts of colognes, hand lotions, and hair preparations given to all the ladies. Door prizes, donated by Max Factor, were made up of the firm's fragrance products in a beautiful glass serving dish. They were won by Mrs. Frank Vadasz and Mrs. Oscar Scherr.—E. A. Walker, publicity chairman.

Advertising highlighted at Great Britain SCC meeting

M. Moss of D. & W. Gibbs Ltd., spoke at the meeting of October 18, on the subject "Advertising in the Cosmetic industry". The speaker indicated that he would be drawing on his own experience which was chiefly in the shampoo and toothpaste field. He first referred to scientists' cynicism about some advertising. This was not surprising as the scientist knew that some claims to cures were specious.

Moss said advertising enables the manufacturer to communicate with those who he hopes will buy his product, and to do this advertising must be both informative and persuasive. A television advertisement film of Two Step shampoo was then shown and analyzed as follows: 1. attention must be arrested (use of the word "discovery" not the overworked "new"); 2. two step music accompaniment tempo was used to attract young girls who were the section of the public aimed at; 3. the requirement from a shampoo—more beautiful hair. 4. Convincing close—How do they get it? by using a two formula shampoo in one bottle.

Moss made a similar analysis of advertising films for

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USINES DE SEILLANS
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Helpful hints contained in Catalog 58-P

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Manufacturers of Filters, Filter Sheets, Vacuum Bottle Fillers, Pumps

Signal toothpaste. It would appear from results that the public regards toothpaste seriously and therefore a light hearted approach must be avoided. This product had the advantage that the hexachlorophene could be advertised as being contained in the red stripe. A "gimmick" of this type is very useful to link advertising to and saves advertising expense.

It is much more difficult to advertise an entirely new product, Moss said. This may involve a change in the public's established habits. As an example a film was shown advertising "Dentabs". These are tablets which can be sucked by children which cleans their teeth in the process.

Television advertising has revolutionized advertising results. After an intense national campaign peak results could occur within six months of its inception. This, of course, had repercussions on purchasing, production and distribution.

The speaker then turned to the morality of advertising. While an advertisement will omit reference to the less favorable qualities of the product advertised it must not greatly exaggerate or over claim. In the speaker's view such treatment will not result in repeat business. He mentioned the precautions taken by tv contractors against specious claims made by advertisers on their screens.

In the course of the discussion the lecturer stated that with tv peak results could be reached very quickly, with advertising in other media it could be slower. Some advertising never did pay off, Moss reported. He said that it was very difficult to estimate how much money should be allocated to advertising. Sometimes an additional 15% spent would make a substantial difference but the estimates must be imprecise.

Asked how much should be spent to make a national impact when launching a new product he replied that twice the amount spent by the biggest advertiser might be required for a short period. This would fall to about three quarters of that amount subsequently to complete establishing the product.

The meeting was then closed by Society President Dr. H. W. Hibbott. The audience expressed their appreciation for an informative lecture.

New England Chapter elects officers

New England Chapter of the Society of Cosmetic Chemists has elected the following new officers for 1962.

Robert Swaine of Arthur D. Little, Incorporated, who, for the past year has been Chairman-Elect and Chairman of the Program Committee, automatically becomes Chairman for the Year 1962. He had previously been Chairman of the Publicity Committee.

Richard P. Reavey of John H. Breck, Incorporated has been elected Chairman-Elect. He will also serve as Chairman of the Program Committee. Previously, he served as Chairman of the Legislative Committee and most recently as Chairman of the Publicity Committee.

William Thalheimer of the Atlas Chemical Industries, Inc. has been elected Secretary.

Myron Slotsky of the Gillette Safety Razor Company, who was formerly Secretary of the Chapter has been elected Treasurer. He succeeds Donald H. Kirby of John H. Breck, Inc.

The Chairmen of the various Committees which, along with the officers of the Chapter, make up the Executive Committee are as follows.

Publicity Committee, Donald H. Kirby of John H. Breck, Incorporated; Special Events Committee, Hart Harris of S. B. Penick & Company; House Committee, Miss Pamela Low of Arthur D. Little, Incorporated; Membership Committee, James Dugan of Dodge & Olcott, Incorporated; Inter-Professional Relations Committee, Dr. Winthrop Lange of Massachusetts College of Pharmacy; Legislative Committee, Jesse Starkman of Gillette Safety Razor Company; Program Committee, Richard P. Reavey of John H. Breck, Incorporated.

The new editor of the Chapter's newsletter is Vincent Beck of the Sherwood Company.

The installation of the new officers of the New England Chapter of the Society of Cosmetic Chemists took place on December 2, which was also the occasion for the Chapter's Annual Ladies' Night.—R. P. Reavey, publicity chairman.

Surfactants discussed at Spanish SCC meeting

"Surfactants: laboratory testing methods" were discussed by Carlos Gomez Herrera, Fat Institute and president of laboratory testing methods commission of the Spanish Detergency Committee, at the October 31 meeting.

A course of ten lectures has been arranged for December and January on Microbiology. The lecturer will be Prof. Dr. Ramon Pares Farras, C.S.I.C., Faculty of Science, University of Barcelona.

This series of lectures will cover the following points: general characteristics of microorganisms; structure and composition of bacteria; microbial metabolism; cultivation of bacteria; principal types of bacteria and other microorganisms; the growth and metabolic activity in connection with the vehicle action; effect of radiation, photo-reactivity, oxygen and other physical and chemical factors; osmotic and hydrostatic pressure; energetic and plastic substratum; biological factors; death of bacteria and disinfection.—Carlos Susanna-Gregory, publicity chairman.



INFRARED EXAMINATION OF YLANG-YLANG OIL

G. S. KRISHNA RAO • WILLIAM SKAKUN • LEO LEVI

Food and Drug Laboratories, Department of National Health and Welfare,
Ottawa—Canada

"There has been a great deal of confusion in the evaluation of ylang-ylang oils because of the many existing qualities which depend upon geographical origin and the method of distillation. Now, in this exhaustive study, Dr. Leo Levi, Head of the Essential Oils Research Laboratory of the Canadian Food and Drug Directorate, and his associates present an entirely novel and most desirable approach for the analysis of ylang-ylang oil by modern spectrophotometric methods. In this writer's opinion it represents a tremendous forward step in the scientific evaluation of these exotic materials."

(Ernest Guenther, Ph.D.
Vice President & Technical Director
Fritzsche Brothers, Inc., New York)

As part of an essential oils research program, the authors developed a unique analytical method, based on conventional and differential infrared techniques. Correlation of this data with conventional chemical data showed that this new method permits the characterization of oil of ylang-ylang, and the determination of its fractions, with a greater degree of reliability than has heretofore been possible.

In identifying "unknowns" from a wide variety of sources, it has proved to be 100% accurate. Its scope and value as a general technique for the analysis of essential oils and related products is discussed.

Over one hundred and forty spectrographs are reproduced in this book. They are reproduced sufficiently large that the reader can easily follow the authors' techniques and descriptive explanations.

Eighty pages, 8½ inches by 11½ inches, paper cover.

Pre-publication, \$12.50 per copy, effective until January 31, 1962. Thereafter, \$14.00 per copy.

The American Perfumer **418 N. Austin Blvd., Oak Park, Illinois**

The attached payment of \$_____ is for the purchase of _____ copies of "Infrared Examination of Ylang-Ylang Oil" by Rao, Skakun & Levi, at the pre-publication price of \$12.50 per copy, in effect until January 31, 1962. Ship immediately on publication to:

NEWS & EVENTS

Benjamin heads manufacturing at Aerosol Techniques

David Benjamin has been appointed vice president—manufacturing at Aerosol Techniques, Inc., Bridgeport, Conn. He will direct operations of the firm's main plant in Bridgeport. He has been associated with the company since 1957 and was director of purchasing and assistant to the president, prior to his appointment as vice president of planning and engineering.

Sciarra becomes consultant for Foster-Forbes

Dr. John J. Sciarra, St. John's University, has been engaged as a consultant by Foster-Forbes Glass Co., Marion Ind., producer of uncoated glass aerosol bottles.

Dr. Sciarra, who has specialized in the aerosol field, will conduct experimental and developmental laboratory work to determine all possible uses of uncoated aerosol glass bottles.

An instructor in pharmacy at the

University of Maryland, Dr. Sciarra is also on the staff of St. John's, where he conducts a class in aerosol technology as well as pharmacy. Last Fall, he addressed the Third International Aerosol Congress in Switzerland, and has presented a number of scientific papers. He has developed several aerosol, or pressurized, products in the chemical, pharmaceutical and food fields.

Newest perfume firm in Hawaii headed by Baumgartner

Dr. Horst P. Baumgartner, member of the Society of Cosmetic Chemists, is president of the newest perfume producer in Hawaii, Liana of Waikiki, Inc.

After receiving his German doctors degree for research in organic and physiological chemistry, he became associated with Margaret Aston Cosmetics and later with J. G. Mounson & Co. in Germany.

His training in perfumery took him many times to Grasse, France, where he became well acquainted with the

methods of flower extraction. Early in 1958 Baumgartner came to the U. S. under a contract for research in organic chemistry at the University of Maryland.

On a trip to the Hawaiian Islands, he was so intrigued by the exotic fragrances of the local flowers that he decided to stay and manufacture South Seas flower perfumes. He founded the firm in April, 1961, after extensive experimentation. Today, the company produces flower oil concentrates, extract perfumes, solid perfumes, toilet water and colognes. Plans are afoot to expand the South Seas flower perfumes to the mainland and other countries.

Soap and detergent sales swing up

Soap and synthetic detergent sales rose to a new high in the first nine months 1961, according to reports from 51 manufacturers participating in the quarterly Sales Census conducted by the Association of American Soap & Glycerine Producers, Inc. Sales totalled 3,390,743,000 pounds valued at \$865,271,000, up 1.6% in volume and 1.1% in value.

Sales of solid synthetic detergents amounted to 2,069,842,000 pounds, up 1.5%, liquid synthetic detergents sales were 530,720,000 pounds, up

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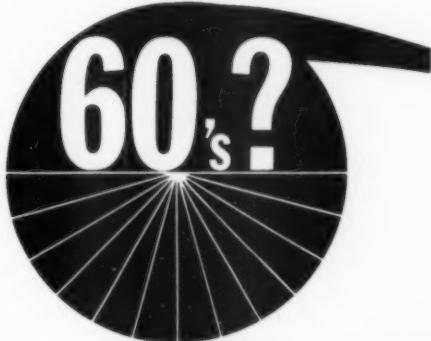
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11.7% in volume and, sales of synthetic detergent shampoos totalled 18,616,000 pounds, up 12%.

Soap sales amounted to 771,565,000 pounds, down 4.2%.

Pharmacy school gets new building at NEU

A \$2-million building will house the Northeastern University College of Pharmacy, Boston, Mass. To be added to the existing Science Hall, the four-story L-shaped wing will provide administrative offices, undergraduate laboratories, and research laboratories. Construction is expected to begin in 1963. The New England College of Pharmacy will become Northeastern's fifth basic college in September 1962.

IFF reports earnings names new officers

Consolidated earnings for the nine months period ended September 30 totaled \$2,443,000 a 2% increase over the comparable 1960 period. Sales increased to \$27,717,000 from \$26,027,000 in the same period.

Two executives of the company have been named directors of the company; F. H. P. Trip, vice president in charge of European opera-

tions, and Henry P. van Ameringen of New York City. In addition, two men representing investment bankers have been elected to the board, Hugh Knowlton, Jr., and W. Barrett Brown.

High-purity grade 3-Methyl Butanol-1

Union Carbide Chemicals Company has announced availability of a high assay (99.39%) grade of 3-methyl butanol-1 that is relatively free of isomers. It is claimed that odorant esters made from this material are smoother and more floral in character.

Sidney Stokes to retire from IFF

Sidney Stokes, director of public relations and advertising for International Flavors and Fragrances since 1955, will retire from active duty with the firm, but will continue to serve as a consultant. Stokes joined IFF in 1955, after twenty years with Merck & Company.

As a consultant, he will work with IFF and other chemical and drug companies in the areas of public relations and advertising.

Propose merger of Chemway and Weco

The Boards of Directors of Chemway Corporation and Weco Products Co., has approved a proposal to merge the two companies.

The merger proposal will be submitted to the stockholders of both companies for approval after various conditions have been fulfilled.

The combined sales volume of Chemway and Weco is in excess of \$17 million, which is approximately evenly divided.

Dr. West's toothbrushes are the principal product of Weco, which also manufactures toothpaste, hair brushes, hair nets, powder puffs and other products. Weco's Oral B Division produces toothbrushes under the "Oral B" name. Weco manufactures a substantial amount of toothbrushes for other distributors and sold under other names. Its new toothbrush production plant completed in 1960 at Iowa City, Iowa, is the world's largest.

Chemway manufacturers ethical and proprietary drugs, cosmetics toiletries and household products. The major divisions are Lady Esther, cosmetics; Dunbar Laboratories, proprietary drugs and toiletries division; Crookes-Barnes Laboratories, Inc., producing ethical drugs; and Chemway International.

Roberts rearranges sales organization

Due to the continuous growth of its business A. Boake, Roberts & Co. Ltd. has found it desirable to rearrange part of its sales organization.

The former Aromatics Division has been dissolved and two new divisions formed.

C. C. Hussey is the Group Sales Manager of the new Aromatic Chemicals Division which will devote its efforts to the sale of ABRAC Perfumery Chemicals and certain non-odorous fine chemicals used by the Perfumery, Cosmetics, Soap and Pharmaceutical industries.

H. Paige is Group Sales Manager of the new Perfumery & Cosmetics Division which will concern itself with specialty products—in the main, Perfume Compounds and Bases, Speciality Fixatives, and Cosmetic Emulsifying Agents.

Collapsible Tubes for cosmetics climb sharply

Shipments of collapsible metal tubes rose by 11.3 million units to 757,007,874 tubes in the first eight months of 1961, the Collapsible Tube Manufacturers Council reported. Shipments in August increased by 13 per cent.

Fold-up metal tubes for cosmetics showed the largest gain in the first eight months, rising 10% per cent from the comparable period a year ago to 84.1 million units.

Pfizer to make monosodium glutamate

Chas. Pfizer & Co., Inc., has entered what it calls "the growth market for monosodium glutamate". Bulk quantities of Pfizer MSG are now available in fine granular and powder form.



Helena Rubinstein has been named "Woman of the Year" by the National Women's Division, American Friends of the Hebrew University. She was cited for "her sensitive and creative genius which has enabled her to devote a lifetime to beauty, both external and of the Spirit".

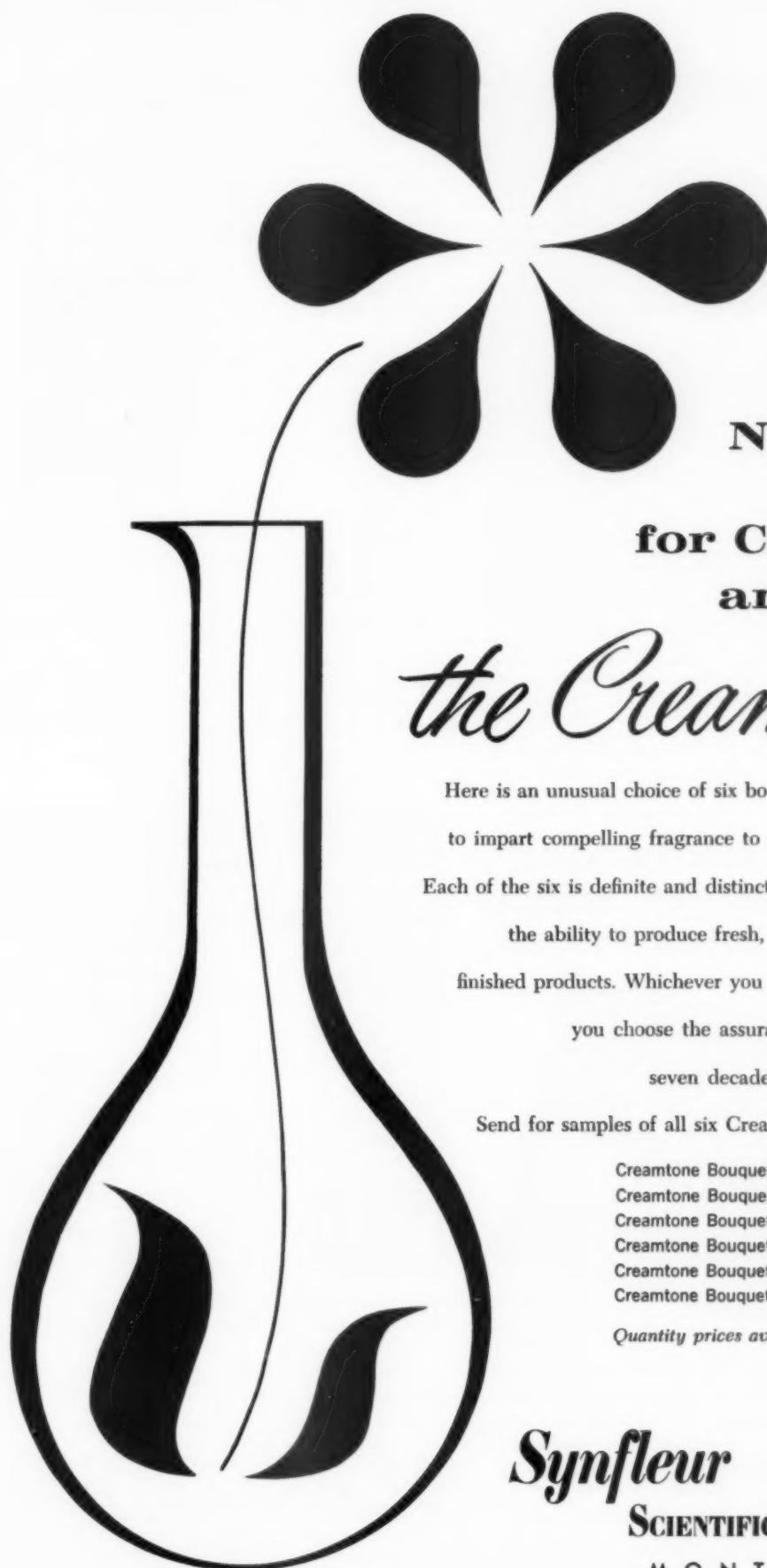
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Send for samples of all six Creamtones; there is no obligation.

Creamtone Bouquet A	\$14.75 lb.
Creamtone Bouquet B	11.00 lb.
Creamtone Bouquet C	12.00 lb.
Creamtone Bouquet D	13.70 lb.
Creamtone Bouquet E	15.00 lb.
Creamtone Bouquet F	10.00 lb.

Quantity prices available upon request.

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Personalities

John G. Jennings is director of market research and new products coordinator at John H. Breck Inc., Springfield, Mass. This is a new position at the hair preparations firm. Previously to joining Breck, Jennings was vice president of marketing at Noreen, Inc., Denver.



R. Archambault

Robert N. Archambault has been appointed sales manager of the Charles Antell division of B. T. Babbitt Inc. He had been regional manager for eleven western states, and came to Antell in 1959 after seven years with the Eversharp Company.

V. Eric Johnson has been named assistant director of purchases for Chas. Pfizer & Co., Inc. Robert H. Wilson succeeds him as purchasing agent at firm's Brooklyn plant. Johnson has served with the company since 1949. Initially a buyer at Brooklyn, he was promoted to purchasing agent in 1955.

Harold P. Hecken has been appointed assistant manager of aerosol sales at A. Schrader's Son, division of Scovill Manufacturing Co., Inc., Brooklyn, N. Y. He will assist Gerry Torgerson, aerosol sales manager, at all levels of trade contact, but with special emphasis in the mid-west area. The firm makes a toggle-action aerosol valve.

Robert L. Zale is advertising manager of Helene Curtis Industries, Inc., 4401 W. North Ave., Chicago. The post is a new one and covers administrative supervision of art, copy, production and media analysis staffs.

Joseph T. Lewis, director of brand promotion; and Fred L. Willis, director of marketing development, have been named vice-presidents at The Toni Co., Chicago.

Travelers

Dr. and Mrs. Georges Firmenich, Geneva, Switzerland, are visiting the United States, combining business with a brief holiday on the Isle of Tobago in the British West Indies.

Dr. Firmenich's work is with the development and production of the



G. Firmenich

Flavor division of Firmenich International. During his stay in the U. S., he will visit the Firmenich Development Laboratories in Plainsboro, N. J., in addition to the central New York laboratories.

Mary Anne Riordan is newly-named package designer for E. R. Squibb & Sons, division of Olin Mathieson Chemical Corp.

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**Lenthaler Merchandising Changed;
New Fragrance to Romance Prestige Consumer**

(Special to American Perfumer)—Even though *Air de France* is being bottled, sealed and packaged entirely in France, the significance of the perfume's introduction in mid-November lies in the carefully planned marketing program that has been set up. The goal of the merchandising plan is to reinstate the name of Lenthaler with fragrance buyers and consumers.

A peak point in the plan is a limited edition of 750 oz. this year. Other limits include: a strictly controlled department store distribution, an elaborate handwritten numbering system for each bottle offered, and a price (\$36.50 per oz.) that limits the fragrance to a select few.

Reason for Lenthaler's emphasis on franchising exclusiveness for the new fragrance is emphasized in the history of the firm, originally founded in Paris in 1886. Purchased by E. R. Squibb & Co. in 1928, the firm's products entered the American market with prestige franchise distribution.

As the company grew, Squibb broadened distribution from prestige department stores to drug stores, and during the Olin-Mathieson period of Squibb control Lenthaler expanded distribution more widely. During this era, store demonstrations were dropped and advertising turned to mass-distributed publications.

The situation remained thus until Lenthaler was purchased by Helene Curtis in 1957. The new management began to retrieve Lenthaler products from a too mass exposure and return them to the more exclusive "class" markets. Now in its fourth year, Lenthaler says that slow, steady progress in this direction is being made.

Store personnel were immediately reactivated as the key step in the program. Today, Lenthaler has about 150 full-time store demonstrators working in top department stores.

As part of the reactivation, franchises were re-established and a hand-picked sales staff was assembled.

Advertising has also been a major factor, with attention being focused on the leading "class" publications, *Vogue*, *Harper's Bazaar* and *The New Yorker*, for example.

"The launching of *Air de France* is an important step in the development of Lenthaler," says Miss Lynn Boland, merchandise manager.



Lenthaler's new fragrance *Air de France* is described as "full of rich floral notes mingled with subtle citrus." Limited distribution is aimed at an exclusive clientele, and is on closely controlled franchise basis. Designer of the presentation was M. Pierre Camin. The flacon is heavy French crystal, handblown by Verreries de Romesnil, France. The symbolic fleur-de-lis stopper is hand produced frosted crystal, polished and repolished. Pale blue satin mounting nests the bottle, and the outer box is shaded from blue, through mauve to aquamarine.



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INDUSTRY EVENTS CALENDAR

Jan. 10—N. Y. Chapter of the Society of Cosmetic Chemists, Chemists Club, 52 East 41 St., New York City. Speaker: Bernard H. Nappen.

April 29-May 2—Flavoring Extract Manufacturers' Association, 53rd annual convention, Skytop Lodge, Skytop, Pa.

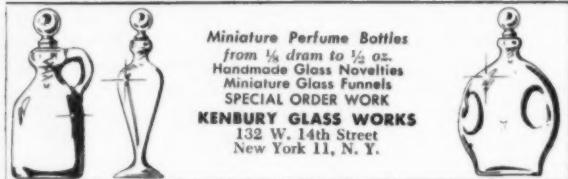
May 7—Toilet Goods Industry Golf Tournament, Winged Foot Club, Mamaroneck, N.Y.

May 9—Scientific Section of the Toilet Goods Association, Inc., Waldorf Astoria Hotel, New York City.

June 24-29—Joint Convention of the Toilet Goods Association, Inc. (USA) and the Toilet Goods Manufacturers' Association of Canada, Chateau Frontenac, Quebec, Canada.

July 2-5—The 2nd International Congress of Cosmetic Science, London, England.

Dec. 5—Scientific Section of the Toilet Goods Association, Inc., Waldorf Astoria Hotel, New York City.



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